

American Schools in Transition

*How Our Schools Adapt Their Practices
to Changing Needs*

A STUDY OF PENNSYLVANIA

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BUREAU OF PUBLICATIONS

Teachers College · Columbia University

NEW YORK · 1941

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A STUDY
PREPARED UNDER THE AUSPICES OF
COLUMBIA UNIVERSITY COUNCIL FOR RESEARCH
IN THE SOCIAL SCIENCES

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Preface

THIS BOOK is directed toward answering two questions: (1) How far does American education lag behind standards generally accepted as desirable? and (2) How can we speed up the adoption of practices which are generally accepted as desirable in the light of experimentation, research, and prolonged consideration? These two questions might be restated thus: How adaptable are American schools? How can their adaptability be improved?

Our interest in adaptability grew out of studies in school finance. As the equalization principle, defined in 1923 by Strayer and Haig, was applied in state after state, it became more and more apparent that ensuring a similar program of education did not have a broad enough conceptual base upon which to establish the financial structure of education. It was too static. Taken alone, it did not make provisions for dynamic elements conducive to continued adaptation of the educational program to new and changing needs.

It first became apparent that plans developed in accordance with the equalization principle alone could be too easily warped for the purpose of reducing the quality of education in abler districts. In the drive for equalization, certain states placed limitations on the powers of communities to determine their destinies. They decreased the ability of the abler districts to support schools by withdrawing aid that had been continuously granted for decades. This was accomplished in a number of cases by devices directly limiting local taxing power or establishing central control over local budgets.

Since these moves were undermining local control of education, it seemed desirable to make a thorough study of local initiative. More and more frequently the question was raised, Just what are the functions of local initiative? Writings on local initiative were vague as to its functions, but it was apparent that it was supported because it kept control close to the people, because it allowed for local variations, and because it promoted experimentation.

A broader study of arguments for local initiative, involving political science literature as well as educational literature in Russian,

German, English, and French, resulted in a classification of arguments.¹ In addition to those mentioned above was the claim that local initiative promotes stability and that it makes for the prudent handling of funds.

An examination of the experimentation argument led to the conclusion that its proponents were interested in providing conditions favorable to the discovery of needs and the invention of adaptations to them. This at least partially explained the opposition to reducing the support of able communities—they tended to be experimental centers. It explained the opposition to central budgetary reviewing bodies—they tended to limit the powers of localities to try new things. It explained the opposition to tax limitations—they in effect limit the ability of communities to spend their own money on experimentation. Important as the other criteria for judging local initiative are, it appeared to the authors that the critical criterion was adaptability.

It is clear that local initiative, in this period of changing needs and growing understanding of educational practices, is today being put to a most rigorous test. Its partial failure to stand the test may explain the flight to centralization of control which has characterized the past two or three decades. But the flight has been an unintelligent one—a flight from irritations without an understanding of their cause. A case of what appears to be waste is dramatized and as a result the whole state is put in a straitjacket. Thus have come limitations on local initiative, such as tax limitations. These limitations may save us from some wastes, but they may deny us the fruits of freedom since they are not accompanied by substitutes for local freedom as a positive force making for adaptability.

Unhappily there was found little evidence to reveal the fruits of this freedom. To place over against the cases of misuse of freedom there was little but wishful thinking. As a consequence, the authors undertook studies to discover the relationships between local initiative and adaptability.

¹ Reported in Mort, Paul R. and Cornell, Francis G., *Adaptability of Public School Systems*. New York: Bureau of Publications, Teachers College, Columbia University, 1938. The information was further supplemented and analyzed by Professor Paul Studenski of New York University. His report first appeared in four articles in the *Teachers College Record* (1939 and 1940), and is now available from the Bureau of Publications, Teachers College, in pamphlet form.

Beginning in 1934 the Columbia University Council for Research in the Social Sciences provided funds for some initial studies in the structural aspects of local support and their aid was supplemented by considerable assistance from Teachers College and from the Works Progress Administration. As a phase of the exploratory work, the Carnegie Corporation made possible a period of study by the senior author in the Union of South Africa. The results of these preliminary studies were reported in *Adaptability of Public School Systems*.² This was largely an effort to stake out the needed research in the area. During the three years just passed the Columbia University Council for Research in the Social Sciences provided funds for carrying on certain phases of the projected research, for which Pennsylvania was selected as a field of study. During the period of this study other phases were carried forward in the doctoral researches of Farnsworth, Knott, Cillié, Bateman, and Ebey.³

It early became apparent that the study of local initiative could not be limited to a study of financial arrangements but must also include the allocation of control. Local initiative needs to have as its financial base the right to tax, the right to budget freely, but it also requires freedom to determine the nature of the program. As a matter of fact, the right to budget freely is the right to determine the nature of the program. The authors' interest thus broadened from the financial factors to all the factors associated with the operation of the school system which make for adaptability. The study reported here had this broader orientation. Our chief purpose was to increase the opportunity for observing phenomena related to adaptability in order that the research job might be simplified by more precise formulation of hypotheses.

Whatever may have been our intent to look at the process of education and see all pertinent things, it would be naïve not to realize that what we saw was conditioned by the instruments we used, our

² Mort, Paul R. and Cornell, Francis G., *op. cit.*

³ Farnsworth, Philo T., *Adaptation Processes in Public School Systems*, 1940. Knott, W. D., *The Influence of Tax Leeway on Educational Adaptability*, 1939. Cillié, F. S., *Centralization or Decentralization? A Study in Educational Adaptability*, 1940. Bateman, E. A., *Development of the County-Unit School District in Utah*, 1940. Ebey, George W., *Adaptability among the Elementary Schools of an American City*, 1940. All published by Bureau of Publications, Teachers College, Columbia University, New York.

frames of reference, our hunches as to what might be related to adaptability. In all probability, therefore, our observations were considerably restricted by the fact that we approached this problem through the door of interest in financial structure.

As the study developed we experienced from time to time a distinct shift of our point of view which threatened to obscure the values in the original one. The truism that "structure affects adaptability but persons must do the adapting" gained more and more meaning and at times made the consideration of structure seem unimportant. In digesting the materials, however, it is believed that a fair degree of integration of these two approaches was achieved.

The average adult past forty is usually correct when he remarks that the schools in his community today are very different from the schools he knew as a child. Such observations are often accompanied either by disparaging reference to modern "fads and frills" or by expression of satisfaction that the schools have improved so much. In both cases it is the difference between the present and the past which impresses older adults—not the difference between schools as they are and schools as they might be. Few realize that if the present-day schools in their community were to take on all the new practices which could be defended, these schools actually would seem about as old-fashioned as the schools of their childhood.

In considering how the schools may be brought into better alignment with the purposes they should serve, we need three types of information. We need to know (1) the influence, on a school system's capacity for change, of the social and economic settings in which schools operate; (2) the influence of the state-wide framework of the educational organization itself; and (3) the ways in which various forces may be utilized in implementing change. The first two define adaptability; the third, the adaptation process.

Education may be appraised in terms of any one of three sets of criteria: (1) the subjects of present-day controversy among educators, most of which will be found practically applied in only a few schools, or in no schools at all; (2) the vast range of objectives and practices which have been thrashed out and which are now generally accepted by educators; and (3) the actual status of American schools. We found it practicable to deal only with the second and

third of these sets of criteria. Accordingly we raised these questions: (1) How far does American education lag behind standards generally accepted as desirable in practice? (2) How can we speed up the adoption of practices which are generally accepted as desirable in the light of experimentation, research, and prolonged consideration?

For the materials in this study we have drawn upon the state of Pennsylvania. Its position at slightly above the average on the scale of expenditures of American states, its broad range of expenditures among communities, and the wide variety of economic, social, and geographical conditions in the state promised to give the results obtained from it at least a strong presumption of wide applicability to other states.

In this volume we seek to reveal some of the factors which should be taken into consideration in reducing the lag between the recognition of need, the invention of means of meeting the need, experimentation with such inventions or discoveries, and the rapid diffusion of generally accepted methods throughout the schools of the land. This is a task for many workers and many years. This volume is a report of an early exploration. We went out through the state of Pennsylvania largely without instruments. We talked with teachers, superintendents, board members, and citizens. Gradually leads developed which we could follow. The picture which has been drawn of the educational system of Pennsylvania and, by implication, the picture of the educational system of the United States, is one of the products of this exploration.

The scope of the study and the mode of attack are outlined in the Introduction. Part I (Chapters I, II, and III) shows the extent of adaptation and the rate and geographical nature of its diffusion. Part II (Chapters IV to VIII) deals with the structural features of the school system and with environmental characteristics which condition adaptability. Part III (Chapters IX to XVI) focuses attention on persons—those persons and agencies which, working within the structural setting, are responsible for the actual adaptations. Part IV (Chapters XVII to XIX) summarizes the implications for change in structural design, for internal operation of the adaptation process under given conditions, and for persons and groups seeking

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Introduction

IN AN earlier volume, *Adaptability of Public School Systems*,¹ the authors attempted to define the concept of adaptability, to present a technique for measuring and identifying it, to outline factors which influence it, and to lay out needed areas for investigation. Their purpose was to open the field. They presented hypotheses culled from several years' observation of the problems outlined.

In brief, adaptability may be defined as the capacity of a state school system to respond to changing demands on public education by casting off obsolete functions and methods and taking on new ones. In this respect the state school system is considered to be the sum total of all local school districts and central public educational agencies which provide public education within the geographical limits of the larger political unit.

A number of problems have been precipitated out of the analyses of factors involved in the adaptation process. In the monograph referred to above, the authors emphasize the problem of appraising local financial and administrative freedom in terms of adaptability as a criterion. But the nature of distribution of control between central and local units is simply one of many structural characteristics of the state school system which need explanation in terms of the effect on adaptability. Among others may be mentioned the type of district organization, the type of machinery for training and recruiting teachers, the level of expenditure and the service qualities of the state education department, as well as a multitude of social-psychological factors.

It is believed that any thoroughgoing contribution in the study of adaptability will eventuate only by attacking the entire complex of factors which influence adaptability. The dangers of limiting the investigation only to superficial mechanical factors are obvious. It seemed imperative, therefore, that prior to undertaking extensive comparative studies it would be advisable to learn more about the process of adaptation itself.

¹ Published by Bureau of Publications, Teachers College, New York, 1938.

The present study has been set up just for that purpose. The Pennsylvania school system was taken for "case study." We have attempted to treat a state school system as a growing organism which has been in the process of evolution over a period of years. We have been interested in developing a better understanding of those factors and forces which have been operating in producing the progress which has been achieved in the past in an actual state school system. In such a project it has been felt that the interaction of human and natural forces involved in changing the school program might at many points be observed and analyzed.

In the general attack upon this work we have been aware that terms such as "structural features of the school system" often convey a very abstract, highly simplified meaning which filters out the human participants. In addition to asking how we may "build adaptability into the structure of school systems," we should also ask how we may surround teachers, superintendents, school board members, parents, and others with opportunities and stimuli that will make them experimental in attitude and receptive to new demands. The problem of getting adaptability is, in the last analysis, a problem of influencing human behavior.

For purposes of obtaining objectives of this case study of a typical state school system, an effort has been made to answer the chief question: Just how and why have certain new educational practices or adaptations developed in Pennsylvania? More specifically, this work has been directed toward (1) learning more about the effect of factors operating in the process of adaptation, (2) isolating factors not previously identified, (3) verifying hypotheses presented in the earlier study, (4) modifying hypotheses previously set forth, (5) laying out new hypotheses for further study, and (6) developing and improving methodology and technique.

As indicated earlier, the purpose of the study was not in any sense to survey or appraise, in the generally accepted sense, the school program in Pennsylvania. Pennsylvania was chosen because it appeared best to serve the demands of our study in obtaining developmental materials on local school programs in a relatively large number of communities—heterogeneous as to various social, economic, geographical, educational, and other characteristics, but comparable

in the sense of operating under the common direct and indirect influence of a single set of state legal and administrative controls.

Materials were assembled and analyzed from two points of view. The first consisted of an intensive study of the development of nine specific adaptations in their course of diffusion through school districts in the state. By means of this approach an attempt was made to build up a better understanding of adaptability in general by observing adaptation as it operated in the nine specific cases of adaptation. The second consisted of an analysis of factors related to the general adaptability of schools as measured by a rating scale of 183 adaptations. Data were collected for these two phases of the work from approximately the same school districts within the State.

Through preliminary visits with members of the State Department of Public Instruction and teachers and administrators in a number of school districts and an examination of state documentary materials, twelve adaptations in process of adoption in communities within the State were selected, of which the following nine were ultimately retained:

The public kindergarten
Reorganized high schools
Special classes for the mentally handicapped
Homemaking for boys
Adult leisure activities
Integration of extracurricular activities
Elimination of elementary final examinations
Integrated curricula
Supplementary reading

They are described on pages 27 to 29 and pages 504 to 506.

A questionnaire was distributed to all first, second, and third class districts and a one-tenth random sample of the fourth class districts of the State. This questionnaire was designed to determine where and when the twelve adaptations had been made in the individual school districts of the State. Three hundred and forty-four school districts responded. The data collected in this way were supplemented by statistics derived from other sources regarding size of districts, expenditure, and wealth. These data served various pur-

poses: (1) for the development of basic charts showing the rate of growth of each adaptation through the State, (2) as a basis for the selection of communities to be visited for more intensive study, and (3) as preliminary materials for the analytical study of the extent of adaptation at the present time.

After preliminary field work an extensive documentary and legal study was made of each of the nine adaptations, which revealed their historical background throughout the United States as a whole and the State of Pennsylvania in particular.² Field studies were then made of forty-eight school districts within the State selected to reveal the various circumstances under which adaptation takes place. These districts included all types of communities in the State as to size, wealth, expenditure, and geographical location. Certain industrial, economic, and social factors were also taken into account. Thirty-six of these districts constituted a statistical sample used for the study of adaptability in terms of three criteria of classification—wealth, size, and geographical location. The other twelve were drawn largely from the larger and wealthier groups to increase the number of cases for the study of adaptations actually made. By means of data obtained from questionnaires sent to a large sampling of districts, it was possible to include among the forty-eight districts those districts which had introduced an adaptation at different periods of its diffusion throughout the State. The size-classification of the groups of districts—344, 48, and 36—is shown in Table 1.

In visiting these communities, schedules and questionnaires were submitted to administrators, teachers, and parents, and controlled interviews and documentary studies were undertaken for purposes of determining the course of the development of the nine adaptations in the individual communities and the operation of factors relating to each of them.

The nine adaptations on which much of this study is focused were selected to represent as many different types as possible. Some required expenditure of money; others did not. Some, like the public kindergarten and adult education, represented additions to the scope

² The original twelve adaptations were used as a range measure of adaptability in studying regional factors (see Chapter III), but in the case studies of individual adaptations three of them (distributive trade courses, visiting nurse service, and individual instruction) were eliminated.

TABLE I

Size-Classification of School Districts in the Three Groups Studied

	STATE TOTAL (1928)	THE GROUP OF 344 ^a	THE GROUP OF 48	THE GROUP OF 36
First Class (Population over 500,000) . .	2	2	0	0
Second Class (Population 30,000-500,000) .	20	18	4	2
Third Class (Population 5,000-30,000). Cities and Boroughs (Union)	171	138	28	21
Townships	86	62	8	6
Fourth Class (Population under 5,000). Boroughs (Villages)	826	46	3	3
Townships	1,477	78	5	4
Total	2,582	344	48	36

^a For tests of representativeness, see Supplement B, p. 445.

of the school program. Others, like homemaking for boys and the reorganized high school, represented internal changes. Some affected all children; some only a few of the children. Some dealt with the high school; others with the elementary school. Some had already emerged at the turn of the century; others are only now emerging so far as the schools of Pennsylvania are concerned. We sought this variety because our purpose was to throw light on a wide range of adaptability. Our interest was not in the individual adaptations as such. In the forty-eight communities in which detailed case studies were made, a general over-all measure of adaptability was applied. This made it possible to consider the nine specific adaptations in relation to a general index of adaptability and gave a basis for studying the relation to adaptability of such factors as wealth, size, and expenditure.

The instrument used as a measure of adaptability was the Mort-Cornell *Guide for Self-Appraisal of School Systems*.³ This guide

³ Mort, Paul R. and Cornell, Francis G., *A Guide for Self-Appraisal of School Systems*. Bureau of Publications, Teachers College, New York, 1937.

had been developed specifically as a measure of adaptability. The method of this development assumed that adaptability could be inferred from the degree to which school systems had made adaptations in the past. It was built upon a study of some 700 primary and secondary sources dealing with the social and economic forces and their implications for education. Tables 3 and 4, in Chapter I, show the range of this instrument. The reader interested in the details of its development and in its validity and reliability is referred to the chapter entitled "The Earmarks of Adaptability" in *Adaptability of Public School Systems*,⁴ which is summarized briefly as follows:

The study of adaptability must be approached through a study of actual adaptations. In an effort to systematize the procedure of studying the adaptability of school systems, a series of symptoms of adaptation have been arranged in a form for controlled observation and interview. This is published in the separate document called *A Guide for Self-Appraisal of School Systems*. In its preparation, sources in the fields of education, sociology, and economics were examined for the purpose of listing conditions which would be expected to prevail in those school systems which are most responsive to current demands. Following this step came the preparation of items deemed symptomatic of the conditions or "standards" as developed above.

The general usefulness of the total instrument and item for item validity were checked by reviews of educators in the United States and in the Union of South Africa, and by a documentary study of educational trends and implications in the Union of South Africa. Weightings for the various sections of the instrument were based on judgments of American educators. Checks on reliability and item validity were made possible by application to forty-seven school systems in eastern United States and in the Union of South Africa.

Several revisions of form and content were made to increase objectivity, reliability, and validity. Revisions were based upon judgments of educators and statistical considerations of how well the guide served its purpose in actual applications to school systems.

An analysis of the content of materials in the guide indicates that it is made up for the most part of specific observable items, and of items which permit variety in the forms of adaptation. A majority of the items refer to steps which school systems have already taken

⁴ *Op. cit.*, Chapter III.

to improve their educational programs, yet some of the items definitely relate to activities carried on by schools in anticipation of future improvement. As a whole, the adaptations included in the guide tend to reflect conditions of schools as they are today, both with respect to changes which have taken place in the past, and with respect to provisions favorable to change in the future. They imply response to new demands and to change in demands to satisfy persistent needs.

In summary, the steps followed in the course of this study may be outlined as follows:

I. The Spread of Twelve Adaptations

Information on the nature and rate of the spread of twelve adaptations through the State of Pennsylvania was obtained by means of a questionnaire.

II. The Detailed Study of Nine Adaptations

This phase of the study was limited to nine specific adaptations which have been taking place in the State. The approach was historical or developmental. The course of the development of these adaptations throughout the State was traced and the factors which appear actually to have contributed to their growth were observed. The following procedures were involved:

A. Documentary studies of primary and secondary historical sources and legal documents and statistics showing the background of each of the nine adaptations in the United States and in the State of Pennsylvania.

B. The determination of the rate of growth and the quantitative course of each of the nine adaptations derived from materials received through questionnaires sent to a large sample of school districts in the State and other statistical data.

C. An historical study by field work in a limited sample of school districts in the State of the processes involved in the development of each of the nine adaptations in local communities of various types.

D. A comparison of patterns of growth observed in each of the nine adaptations by means of the three foregoing steps and the synthesis of these patterns in terms of adaptability as a whole.

III. *Relationships Between Adaptability and Various Factors*

This phase of the research involved the study of the relation of various social, economic, and educational factors to adaptability as a whole. Adaptability *growth* was not considered in this phase. The treatment was made in terms of the extent of adaptability observed at a given time, and measured on a scale comprised of 183 adaptations. The study consisted of the following steps:

A. An analysis was made of adaptability as indicated by a questionnaire sent to a large sample of districts in the school system of the State with reference to the presence or absence of twelve specific projects. This analysis was made in terms of statistics available for all of these districts, such as wealth, school expenditure, and size.

B. Original data were obtained from a small sample of school districts in the State of Pennsylvania regarding adaptability as determined by an actual survey of the school programs as a whole and as related to other materials obtained by interview, questionnaire, and public documents.

C. The foregoing materials were then subjected to statistical analysis for purposes of determining the relation of various factors to adaptability as a whole and the characteristics of certain of these factors.

D. Several communities—one in particular—were subjected to prolonged and intensive observation in order to turn up factors which might elude a visit of only a few days. Illustrative anecdotes and other material from these intensive studies have been inserted in the study at a number of points.



EDUCATION IN THE RURAL-FARM COMMUNITY

Rural life and rural education are simple. The rural-farm community has the least adaptable schools. Education has advanced but little beyond the three R's of generations ago except in such externals as school housing and transportation. Rural-farm school districts are small and poor. The financial support of public education is limited. In this type of district, adaptability of schools is favored least by community cultural conditions, by the training and experience of teachers, and by professional leadership.

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PART I

*The Fortunes of Educational Adaptations Since
the Turn of the Century*

The three chapters that make up Part I provide a picture of the extent of educational change in American schools since the turn of the century. Chapter I shows the present extent of diffusion of a wide array of adaptations in the State of Pennsylvania. Chapter II reveals the slow unfolding of the adaptation process. Chapter III shows how adaptations spread through a state—where they take on quickly, where and how they diffuse, where they lag.

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CHAPTER I

How the Schools Have Met Newly Emerging Needs

As a background for a consideration of how actual adaptations come about, certain of the materials collected are drawn upon to give a picture of the present degree of adaptation of the schools of Pennsylvania and, by implication, of the schools in America.

The past few years have been a period of great controversy in the field of education. The participants in these controversies are relatively few, yet the general impression is that the schools, by and large, have adopted the practices that are debated. Note, for example, the statement that appears from time to time that this or that ill to which we are subject as a nation can be traced to "progressive education." Such statements are made freely in spite of the fact that, in general, in the schools of Pennsylvania today and, the authors venture to say, in the schools of America, we find little manifestation of the practices subject to controversy. As a matter of fact, the succeeding waves of "reform" which have come and passed in this century have left discouragingly little mark.

The measuring instrument used in defining the amount of adaptation is a cross section of the approved new practices that have come from such movements of the past forty years and the research, experimentation, and philosophical development associated with them.

Reform Movements of the Past Forty Years

In 1898 John Dewey gave his lectures on school and society. At that time few, if any, educators were giving thought to proposals outside the traditional problems which they had inherited with their schools. With the turn of the century they could no longer be oblivious at least to some of the vast effects of social change. Child labor laws and school attendance laws were bringing the whole child population into the elementary school. Those handicapped physically and mentally could no longer be ignored. With increas-

ing technological unemployment the school-leaving age increased so that by the end of the second decade of the century the educational world was faced with the problem of caring for all grades of ability on the high school level as well as on the elementary level. This period saw the emergence of the theory of the people's high school to take the place of the college preparatory school. Studies of the characteristics of the whole population, a cross section of which was brought into the high schools, led to shock upon shock. The old college preparatory course proved inadequate. In addition, the discovery that the old, simple notion of formal discipline was no longer tenable destroyed the concept of a single golden thread curriculum that could be all things to all men. A new appraisal of the social heritage was necessary in terms of a vast variety of individual objectives. Little wonder that in the twenties an expanding group of educational workers became concerned with the re-appraisal of the validity of the old objectives accepted for education; and little wonder that, in the exigencies of the depression, many fertile minds were led to dream dreams about an education that would play a braver part in society.

This period also saw the emergence of scientific method in the field of education. With it came a vast amount of laboratory testing of ideas, old and new. As a result, textbooks were rewritten, courses modified, change in emphasis given to various aspects of the tool subjects and there emerged a vast variety of tests designed to measure the results of instruction. In the 20's the testing movement and the curriculum reform movement came into serious conflict. Tests were devised by persons who had not taken the trouble to keep up with new developments in the curriculum. Curriculum designers were too busy with their immediate tasks to develop appropriate tests. Not until the 30's was there a beginning of integration of these two movements.

In the early part of this century we had the first problems that came from child labor laws and compulsory attendance and the increasing industrialization of our land: the kindergarten, classes for the handicapped, and the challenge of the fitness of traditional curriculum materials for the new population brought into the elementary schools first, and later into the high schools. This was followed

by a wave of curriculum appraisal. It led to abandonment in theory of the single track for all with adjustments to ability made in terms of time spent. Finally it led to the intensive reconsideration of major objectives in which we now find ourselves.

There are no longer controversies over most of the problems that concerned us in 1900, or in 1910, or in 1920, or even in 1930. But from the inquiries of these first three decades of the century there came an accumulation of needed changes in school practices. The question that concerns us here is: How nearly have the American schools adjusted themselves to these needs upon which there is now general agreement among educational leaders and the interested public, and what factors have furthered and retarded this adjustment or adaptation? We can address ourselves to this question with confidence that, whatever changes may be demanded by the resolution of current controversies, most of the problems on which educators can now agree remain to be met in our schools. The question of kindergartens ceased to be a subject of controversy early in this century; yet only one city and village school system in six in Pennsylvania have kindergartens. The need for special care for various types of handicapped children was likewise established early in this century; in spite of this, only a small percentage of the handicapped in Pennsylvania are now being cared for.

The Extent of the Diffusion¹ of 183 Adaptations in the Schools of Pennsylvania

The detailed information collected on the thirty-six school systems selected as a representative sample shows the extent of change that has been made in response to the needs which became apparent largely between 1900 and 1930.

The first third of this century marked a period of rapidly emerging needs for educational change and of fertile invention of ways and means. Thirty-six representative Pennsylvania school systems were examined to discover to what degree they had made the needed

¹ Our use of the word *diffusion* as descriptive of a stage in the adaptation process is parallel to the use in physics and should not be confused with the specialized meaning given the term by sociologists. We use it to mean spreading through a state school system.

changes in practice. For this purpose a check list of 183 needed changes or adaptations was used.² Few of these represent any great degree of controversy among educators today. We may state our question as, How well are the schools of Pennsylvania and, by implication, the schools of America, meeting the needs universally recognized in ways that are generally agreed upon?

Fifty-eight of these changes have to do with the nature of the curriculum, its flexibility, its breadth, the types of courses of study, the modifications in the various fields of learning, the so-called extra-curricular activities, and the instrumental materials. These are changes that are necessary to care for the wide range of abilities and interests represented by the pupils in the schools, particularly in light of the discovery that there is no single curriculum which magically trains minds and develops desirable attitudes. Thirty-nine of the changes have to do with provisions for seeing that the individual pupil and his opportunity come together. Guidance was a simple matter when all traveled on the same route. It became an extremely complex affair when it was realized that children do not grow up in groups but rather that each child grows from where he is at any given time in terms of the relation to his status of the opportunities which are given him at that time. These items also reflect the growing consciousness of the place of health service, the need for which was made particularly apparent by the examination of the draft during the first world war.

While these ninety-seven items dealing with the curriculum and the care of the individual pupil are only approximately half of the total number of items, in their importance they were rated by a jury of experts as twice as important as the approximately half of the items which were not so immediately concerned with the curriculum and the pupils.

Of the remaining items, forty-two have to do with the teaching personnel, the supervision of instruction, the grade and subject organization, the administrative planning, the type of control, and the interaction of the school and the community. All these items have a bearing upon the education of each pupil.

² Mort, Paul R. and Cornell, Francis G., *A Guide for Self-Appraisal of School Systems*.

The other forty-four items deal with the school plant and business management, the planning of the plant to make possible future adjustments in the educational program, the fitness of the school site to serve educational purposes, the fitness of the buildings, the adequacy of special rooms, the types of supplies and equipment necessary to the program, and the adequacy of the financial accounting that makes for an effective yet productive use of school monies. These items are necessary to the operation of a proper curriculum and proper care of the individual in spite of the fact that they are in a sense once removed from the actual educational process.

In this check list of 183 items we have represented in no small degree needs which have been present in the schools for all time but which became apparent only under the stress and strain placed on our schools during this century, a condition which came at a time when the curiosity of educational leaders was being stimulated by the development of scientific procedures. We have in the group other needs which are themselves products of the newer conditions. To no small extent, then, an appraisal in terms of this check list can be considered an appraisal in terms of long-time needs—a check on the ability of the educational profession to become aware of the needs and to invent ways of meeting them. It seems to be reasonable, however, to think of them as a check on the degree to which invention and discovery have been applied. This is not so rigorous a test. Many of the adaptations among the 183 represent inventions or discoveries made since 1920. Only a few extend as far back as 1910. By and large, we may think of the results, then, as a picture of the degree to which new inventions and discoveries have come into use within a ten- to twenty-year period following their emergence.

The extent of diffusion of these 183 items among the thirty-six communities is shown in Table 2. From this table it will be noted that every adaptation was found in at least one community, but that eight were found in only one or two. Half of the adaptations were found in eleven or more communities, that is, they were 30 per cent or more diffused. But by the same token half were 30 per cent or less diffused. Less than a fourth of the adaptations were more

than 50 per cent diffused and only a tenth were as much as 90 per cent diffused.

TABLE 2

Extent of Diffusion of 183 Adaptations in Thirty-six Communities

NUMBER OF COMMUNITIES REACHED	NUMBER OF ADAPTATIONS INTRODUCED
0	0
1 or 2	8
3 or 4	15
5 or 6	19
7 or 8	24
9 or 10	21
11 or 12	17
13 or 14	15
15 or 16	19
17 or 18	8
19 or 20	2
21 or 22	10
23 or 24	5
25 or 26	2
27 or 28	7
29 or 30	3
31 or 32	3
33 or 34	3
35 or 36	2
Total	183
25-percentile of number of communities reached	7 (19%)
50-percentile of number of communities reached	11 (30%)
75-percentile of number of communities reached	16 (44%)

Table 3 shows the degree of diffusion of twenty-three groups of adaptations, averaging slightly less than eight adaptations per group. These twenty-three groups appear in the measuring instrument under appropriate generalizations, which are stated in Table 3. The items subsumed under each are indicated in Table 4, by title. In the field work judgment on the schools of a community with respect to an indicated generalization was made largely in terms of the judgments on the individual adaptations subsumed under it.

TABLE 3

*Degree of Diffusion of Twenty-three Adaptation Groups
Among Thirty-six Communities*

GENERALIZATION APPLYING TO THE GROUPS	NUMBER OF COM- MUNITIES GIVEN A POSITIVE SCORE
I. CLASSROOM INSTRUCTION	
A. THE CURRICULUM	
1. <i>Flexibility of Curriculum.</i> The curriculum is sufficiently flexible to provide for individual pupil interests and abilities and to permit teachers to exercise their judgment and initiative in the choice and arrangement of activities, subject matter, and method	10
2. <i>Breadth of Curriculum.</i> The curriculum should consist of a variety of experiences from which the teacher and pupils may develop activities and material best suited to the abilities and interests of individuals and groups. The curriculum should show evidence of increasing in breadth of content and activities	10
3. <i>Courses of Study.</i> The syllabus and courses of study should never be regarded as finished products but should be undergoing continuous adaptation through study of the nature and functions of society, of the community, of the individual child, and of the interrelationships of these. As a result of this study, suggestions as to new methods and materials should become available for teachers' use	5
B. PUPIL ACTIVITY	
1. <i>Fields of Learning.</i> The tendency in the traditional subjects should be to put less emphasis on formal subject matter as such and to provide rich, meaningful units of instruction. There is ample provision for full utilization of devices and materials for most efficient learning	8
2. <i>Extracurricular Activities.</i> There should be a wide variety of group and individual activities to promote individual expression and cooperation in group activities. Unless provided as an integral part of the regular school program, these activities should be offered in addition to the regular school subjects	15
3. <i>Instructional Materials.</i> Instructional materials should be suitable in quantity and variety to meet the needs of every phase or type of classroom activity and should be available for use when and where needed	10

TABLE 3 (Continued)

GENERALIZATION APPLYING TO THE GROUPS	NUMBER OF COM- MUNITIES GIVEN A POSITIVE SCORE
II. SPECIAL SERVICES FOR INDIVIDUAL PUPILS	
A. PUPIL RECORDS AND ATTENDANCE	
1. <i>Educational Accounting.</i> There should be a system of collecting and recording all pertinent information about each pupil. Test scores, ratings, personal information, the facts of the social and physical background, the interests, and the significant achievements of each pupil should be kept up to date and available for teachers. Records should be properly safeguarded against destruction or loss	7
2. <i>Census and Attendance.</i> The attendance of pupils of school age should be administered by a well-trained person with the social service point of view, in such a way as to form a link between home and school	12
B. PROVISION FOR INDIVIDUAL DIFFERENCES	
1. <i>Guidance: Educational and Vocational.</i> There should be an effective program under way for educational guidance on all school levels and for vocational guidance for all pupils prior to the time they leave school	12
2. <i>The Individual and the Educational Program.</i> The educational program should recognize the nature and extent of individual differences and should offer the maximum opportunity for each individual to reach his highest possible attainment	7
3. <i>Health Service.</i> The school health program should provide for the maintenance of the health of all school children and for the correction of physical deficiencies wherever possible, and should help maintain health standards in the home. There should be close cooperation between the school and community health agencies	15
III. EDUCATIONAL LEADERSHIP	
A. SUPERVISION AND SCHOOL ORGANIZATION	
1. <i>Professionalization of Personnel.</i> School personnel should have not only specialized educational training but also a broad social background which better enables them to find, understand, and use materials related to vital issues. They should be capable of exercising initiative and leadership in bringing about education for intelligent	

TABLE 3 (Continued)

GENERALIZATION APPLYING TO THE GROUPS	NUMBER OF COM- MUNITIES GIVEN A POSITIVE SCORE
participation in social affairs. The administrative practices should be such as will lead to the selection and retention of this type of personnel	14
2. <i>Supervision of Instruction.</i> There should be a program of improvement of instruction under the direction of a person specially qualified to assist teachers to improve their teaching techniques. Various forms of conferences, class demonstrations, readings, professional study, curriculum construction, and participation in the development of the school program should be included as methods of achieving this point	10
3. <i>Grade and Subject Organization.</i> The educational program should be the outgrowth of a continuing study of a wide variety of educational services and subjects in relation to the local community as well as a study of possible forms of organization of those within the local system	3
B. SCHOOL ADMINISTRATION AND THE COMMUNITY	
1. <i>Administrative Planning.</i> The educational program is in keeping with present and future educational needs of the community in terms of its social and economic setting	5
2. <i>Status of Control.</i> Schools should be operated democratically. Community attitudes should be salutary in effect and no individual or groups should be successful in bringing about change for reasons other than the best interests of the school children	12
3. <i>Scope of School Influence in the Community.</i> There should be close cooperation between the school and the various individuals and organizations which influence the life of the community	11
IV. PHYSICAL FACILITIES AND BUSINESS MANAGEMENT	
A. THE SCHOOL PLANT	
1. <i>School Plant Planning.</i> The school building program should be the outgrowth of careful study which includes appraisal of the existing school plant, a study of utilization of the plant, a study of the nature and growth of population, and a study of the city plan as it affects the school program	15

TABLE 3 (Continued)

GENERALIZATION APPLYING TO THE GROUPS	NUMBER OF COM- MUNITIES GIVEN A POSITIVE SCORE
A. THE SCHOOL PLANT (Continued)	
2. <i>The School Site.</i> Sites of school buildings should be satisfactory from the standpoint of location, size, expansibility, absence of hazards, absence of disturbances, form, play area, landscaping, and distance from the homes of the children	11
3. <i>School Building.</i> School buildings should show that consideration has been given to the following features: special rooms for special purposes, utility of arrangement and equipment in terms of educational program, safety, durability, sanitation, aesthetic form and decoration, and stimulation to better community architecture. All remodeled and recently planned buildings should show that utility and convenience in terms of an educational program have been given practical consideration	17
4. <i>Special Rooms.</i> Each high school should have such special rooms and equipment as are required by the educational program. Where such rooms are to be utilized for community purposes their location and arrangement should facilitate ready access during or after school hours. Each elementary school should have such facilities in the classroom as are required by the educational program. For some purposes, such as physical education, library service, and some forms of music, special rooms may be necessary; but for most purposes the classrooms should be used, in which case suitable equipment and materials should be available	16
B. BUSINESS MANAGEMENT	
1. <i>Supplies and Equipment.</i> The school system should furnish or make available an adequate amount and appropriate types of supplies and equipment suited to every phase of the work of the school	13
2. <i>Financial Accounting.</i> The system of financial accounting in use should assure the efficient appropriation, expenditure, recording, and safeguarding of school funds	28

It will be noted that only one group—*Financial Accounting*—is more than 50 per cent diffused. Three other groups in the *Physical Facilities and Business Management* section approach 50 per cent diffusion, and three additional groups, *Extracurricular Activities*, *Health Service*, and *Professionalization of Personnel*, have attained more than 40 per cent diffusion. The median amount of diffusion of the twenty-three groups is the same as that of the 183 adaptation items, and the 25-percentile and 75-percentile are slightly higher than those of the 183 adaptations (see Table 2).

Table 4 gives the extent of diffusion of each of the 183 adaptations in the thirty-six communities and shows in addition its status in three groups of five communities chosen from the sample of thirty-six. In terms of adaptation score they are the five highest, the five lowest, and the five middle communities. The table is introduced here for the record. The items subsumed under each of the twenty-three categories which are used in Table 3 are listed in Table 4.³

Diffusion of the Nine Adaptations Chosen for Special Study

Table 5 (page 21) shows the diffusion of the nine adaptations chosen for special study⁴ in the same way as Table 2 shows the diffusion of the 183 items discussed above. Data are given both for the statistical sample of thirty-six communities studied intensively and for the total group of 344 communities studied by questionnaire. The results for the thirty-six communities show somewhat greater diffusion than those for the 344 communities. They vary from 8 per cent in the case of integrated curricula to almost 60 per cent in the case of extracurricular activities. The elimination of elementary final examinations is at the median. This shows about 44 per cent diffusion in these thirty-six communities. The diffusion among the 344 communities is noticeably smaller in every case except supplementary reading and extracurricular activities. The median is 25 per cent diffusion.

³ For a description of the items, the reader is referred to *A Guide for Self-Appraisal of School Systems*, which contains some fifty-nine pages of materials descriptive of the 183 adaptations.

⁴ For description see pp. 27-29; 504-506.

TABLE 4

Extent of Diffusion of 183 Adaptations^a in Thirty-six Communities, in Five Low Communities, Five Average Communities, and Five High Communities

ITEM OF SURVEY MANUAL	NUMBER MAKING THE ADAPTATIONS			
	Of All Thirty-six Commu- nities	Of Five Low ^b Commu- nities	Of Five Average ^b Communi- ties	Of Five High ^b Communi- ties
I. CLASSROOM INSTRUCTION				
A. THE CURRICULUM				
1. <i>Flexibility of Curriculum</i>				
a. Teaching periods	10	1	1	5
b. Supplementary materials . .	16	0	4	5
c. Pupil freedom	13	0	1	4
d. Original materials	10	0	1	5
e. Community environment . .	7	0	2	3
f. Trips and excursions	15	0	1	5
g. Schedule changes	11	1	2	2
h. Projects and activities . . .	10	0	1	4
i. Reference reading	10	0	2	5
j. Self-appraisal	2	0	0	2
2. <i>Breadth of Curriculum</i>				
a. Creative art	13	0	3	5
b. Music participation	30	3	5	5
c. Rhythmic activities	8	0	1	4
d. Music appreciation	7	1	0	4
e. Dramatics	16	1	2	5
f. Nature study and science . .	10	1	1	5
g. Social science	6	0	1	2
h. Controversial issues	8	0	0	4
i. Study of government	9	2	1	3
j. Assembly programs	20	2	2	4
3. <i>Courses of Study</i>				
a. Teacher participation	13	0	2	4
b. Local needs	4	0	0	3
c. Continuous revision	2	0	0	2
d. Experimentation in method .	7	0	1	2

^a For the discussion of each adaptation see Mort, Paul R. and Cornell, F. G., *A Guide for Self-Appraisal of School Systems*.

^b Low, average, or high in total extent of adaptation.

TABLE 4 (Continued)

ITEM OF SURVEY MANUAL	NUMBER MAKING THE ADAPTATIONS			
	Of All Thirty-six Communi- ties	Of Five Low Communi- ties	Of Five Average Communi- ties	Of Five High Communi- ties
A. THE CURRICULUM (Continued)				
3. <i>Courses of Study (Continued)</i>				
c. Emphasis on principles . . .	2	0	0	3
f. Individual differences . . .	8	1	1	3
g. Recency	6	0	1	2
h. Subject unification	4	0	1	1
i. Underlying philosophy . . .	2	0	0	2
j. Correlation of subjects . . .	14	0	2	3
B. PUPIL ACTIVITY				
1. <i>Fields of Learning</i>				
a. Arithmetic	6	0	1	3
b. Mathematics	8	0	3	1
c. Reading objectives	9	0	1	4
d. Reading materials	15	0	3	4
e. Reading methods	12	0	2	4
f. English instruction	8	0	2	5
g. Foreign languages	6	0	1	2
h. Science experiences	8	0	0	4
i. Social studies	7	0	2	3
j. Cultural activities	8	0	0	5
k. Character education	5	0	0	3
l. Health and physical educa- tion	16	1	2	5
m. Vocational training	18	1	2	4
2. <i>Extra-curricular Activities</i>				
a. Physical and recreational ac- tivities	14	0	1	5
b. Activities and educational program	13	0	1	4
c. Membership democratic . .	22	2	5	4
d. Variety of activities	15	1	2	4
e. Exploratory function	2	0	1	3
f. Student government	22	3	3	5
g. Assemblies	22	1	2	5
3. <i>Instructional Materials</i>				
a. Creative materials	10	0	1	5
b. Adaptability	17	0	4	5

TABLE 4 (Continued)

ITEM OF SURVEY MANUAL	NUMBER MAKING THE ADAPTATIONS			
	Of All Thirty-six Communi- ties	Of Five Low Communi- ties	Of Five Average Communi- ties	Of Five High Communi- ties
B. PUPIL ACTIVITY (Continued)				
3. <i>Instructional Materials (Continued)</i>				
c. Quantity	11	0	2	4
d. Illustrative materials	10	1	1	3
e. Experimentation	8	0	0	3
f. Individual instruction	9	0	2	3
g. Accessibility	17	2	2	5
h. Use of library	11	0	2	4
II. SPECIAL SERVICES FOR INDIVIDUAL PUPILS				
A. PUPIL RECORDS AND ATTENDANCE				
1. <i>Educational Accounting</i>				
a. Home background	4	0	0	2
b. Health records	33	5	5	5
c. Outside activities	6	2	0	2
d. Permanent records	23	2	4	5
e. Use of records	7	1	1	3
f. Summaries and analyses	3	0	1	1
g. Protection of records	21	3	3	4
2. <i>Census and Attendance</i>				
a. Remedial	7	0	1	5
b. Home-school relationship	11	0	2	5
c. Personnel	9	0	2	3
d. Records	19	1	3	4
e. Other agencies	12	1	1	5
f. Employment certification	34	5	4	5
B. PROVISION FOR INDIVIDUAL DIFFERENCES				
1. <i>Guidance: Educational and Vocational</i>				
a. Electives in high school	23	3	3	3
b. Occupations	12	0	2	4
c. Employment data	4	0	1	3
d. Placement	3	0	0	4
e. Academic requirements	24	1	4	4
f. Promotion policy	8	1	1	2
g. Demotions	29	4	3	4

TABLE 4 (Continued)

ITEM OF SURVEY MANUAL	NUMBER MAKING THE ADAPTATIONS			
	Of All Thirty-six Communi- ties	Of Five Low Communi- ties	Of Five Average Communi- ties	Of Five High Communi- ties
B. PROVISION FOR INDIVIDUAL DIFFERENCES (Continued)				
2. <i>The Individual and the Educational Program</i>				
a. Intelligence tests	22	3	3	4
b. Records	6	1	0	4
c. Pupil information	1	0	0	1
d. Teacher use of records	5	1	1	1
e. Pupils of low ability.....	13	1	3	4
f. Superior pupils	5	0	1	4
g. Special disability	8	0	1	4
h. Pupil adjustment	5	0	1	4
i. Pupil programs	8	0	1	3
j. Exploratory courses	7	0	2	4
3. <i>Health Service</i>				
a. Coordination with community	15	0	3	5
b. Physical handicaps	14	2	2	3
c. Health in classroom	15	0	2	2
d. Outside aid	21	0	4	5
e. School physician	29	3	5	5
f. Dental advice	15	0	1	5
g. Undernourished	15	0	2	4
h. Pre-school health	7	0	0	3
i. Teacher and child health ..	15	2	4	4
III. EDUCATIONAL LEADERSHIP				
A. SUPERVISION AND SCHOOL ORGANIZATION				
1. <i>Professionalization of Personnel</i>				
a. Personality	11	0	1	4
b. Qualifications	16	0	3	5
c. Special training	14	1	0	4
d. Experimentation	4	0	0	2
e. Tenure	36	5	5	4
f. Salary schedules	8	0	1	1
g. Sick leave	13	0	3	5
h. Retirement provisions	34	5	4	5

TABLE 4 (Continued)

ITEM OF SURVEY MANUAL	NUMBER MAKING THE ADAPTATIONS			
	Of All Thirty-six Commu- nities	Of Five Low Commu- nities	Of Five Average Commu- nities	Of Five High Commu- nities
A. SUPERVISION AND SCHOOL ORGANIZATION (Continued)				
2. <i>Supervision of Instruction</i>				
a. Supervisors	14	1	1	5
b. Supervisory program	4	0	0	5
c. Observation	11	0	3	2
d. Teachers' meetings	8	0	1	5
e. Professional library	6	0	1	3
f. Training for pupil adjust- ment	4	0	0	2
g. Professional study	16	1	2	3
h. Professional organization . .	27	2	4	5
3. <i>Grade and Subject Organization</i>				
a. Local study	2	0	0	2
b. Organization and the edu- cational program	3	0	0	0
c. Articulation	7	0	2	1
d. Coordination	9	0	2	4
e. Kindergartens	3	0	0	1
B. SCHOOL ADMINISTRATION AND THE COMMUNITY				
1. <i>Administrative Planning</i>				
a. Function of board of educa- tion	13	0	1	4
b. Basis for board action	10	1	2	0
c. The budget and the educa- tional program	5	0	1	1
d. Education and community planning	2	0	0	2
e. Study of community devel- opment	3	0	0	2
f. Reports	8	0	2	2
2. <i>Status of Control</i>				
a. Board membership	24	0	3	5
b. Freedom from politics	12	1	4	2
c. Suggestions welcome	10	0	1	5
d. Changes in budget	5	0	0	2

TABLE 4 (Continued)

ITEM OF SURVEY MANUAL	NUMBER MAKING THE ADAPTATIONS			
	Of All Thirty-six Communi- ties	Of Five Low Communi- ties	Of Five Average Communi- ties	Of Five High Communi- ties
B. SCHOOL ADMINISTRATION AND THE COMMUNITY (Continued)				
2. Status of Control (Continued)				
e. Appointment of personnel .	15	0	3	5
f. Recruiting personnel	11	0	3	4
g. Publicity program	5	0	2	3
3. Scope of School Influence in the Com- munity				
a. Community cooperation . .	12	0	0	4
b. Youth organizations	16	2	1	5
c. Parent-school relationship .	15	1	1	5
d. Adult education	9	0	1	3
e. Playgrounds	9	1	2	4
f. Libraries	10	0	2	4
g. Local industry	9	0	0	2
h. Teachers and community .	27	2	4	4
IV. PHYSICAL FACILITIES AND BUSINESS MANAGEMENT				
A. THE SCHOOL PLANT				
1. School Plant Planning				
a. School buildings and the community	15	0	1	5
b. Special consultants	11	2	0	1
c. Adaptability	10	0	0	2
d. Accessibility	32	3	5	5
e. Building distribution	21	1	5	3
2. The School Site				
a. Site planning	6	0	1	4
b. Desirability	16	2	3	4
c. Landscaping	8	0	2	2
d. Adaptability	11	0	4	1
e. Size	12	2	2	3
3. School Buildings				
a. Location	21	2	4	3
b. Fixtures	23	1	4	5
c. Classroom facilities	9	0	0	5
d. Maintenance	17	1	1	5

TABLE 4 (Continued)

ITEM OF SURVEY MANUAL	NUMBER MAKING THE ADAPTATIONS			
	Of All Thirty-six Communi- ties	Of Five Low Communi- ties	Of Five Average Communi- ties	Of Five High Communi- ties
A. THE SCHOOL PLANT (Continued)				
3. School Buildings (Continued)				
e. Sanitary facilities	21	1	3	5
f. Future needs	5	0	0	2
g. Furniture	13	0	0	4
h. Size of rooms	27	1	5	5
i. Interior	4	0	0	3
j. Student traffic	16	1	2	4
4. Special Rooms				
a. High school art	18	1	1	5
b. Elementary art	6	0	2	4
c. High school music	21	1	1	5
d. Elementary music	6	0	1	4
e. Science	14	1	0	4
f. Elementary shop	5	0	1	3
g. High school industrial arts	26	1	4	5
h. Elementary domestic arts	4	0	1	3
i. High school domestic arts	28	1	4	5
j. Libraries	18	0	2	5
B. BUSINESS MANAGEMENT				
1. Supplies and Equipment				
a. Teachers and selection	18	1	2	4
b. Quantity purchases	31	4	4	5
c. Analysis of needs	13	1	3	4
d. Storage	27	2	4	5
e. Electrical teaching aids	12	0	1	5
f. Special subjects	11	0	1	5
g. Ornamentation	3	0	0	4
2. Financial Accounting				
a. Objective need	9	0	2	2
b. Bonding officials	35	5	5	5
c. Expenditures	28	2	4	5
d. Receipts	26	1	4	5
e. Authorization	28	2	5	5
f. Receiving goods and services	17	1	3	5
g. Annual audit	31*	4	4	4

* Annual audits are mandatory in Pennsylvania but not all audits observed agreed with the standards appearing in our measuring instrument.

TABLE 5

Extent of Diffusion of Nine Adaptations in Thirty-six Representative Communities and Communities on Three Levels of Adaptability, and Also Diffusion of Adaptations in 344 Communities

ADAPTATION	NUMBER OF COMMUNITIES WITH ADAPTATION					
	In 36 Commu- nities		Five Low Commu- nities	Five Average Commu- nities	Five High Commu- nities	In 344 Commu- nities
	No.	Per Cent	In Thirty-six Communities			Per Cent
Kindergarten	10	28	1	2	4	13
Reorganized High School	18	50	0	3	5	44
Special Classes	18	50	1	2	5	25
Homemaking for Boys . .	9	25	0	1	3	11
Adult Leisure Class . . .	18	50	1	2	3	13
Extracurricular Activities	21	58	1	3	5	57
Elementary Final Exami- nations	16	44	1	2	4	21
Integrated Curricula . . .	3	8	0	0	1	..
Supplementary Reading	13	36	0	2	4	71

Concentration of Adaptations

From Table 4 it is obvious that there is a very real tendency for concentration. The five communities which have the highest total rating have made 28 per cent of the adaptations, while the five communities making the lowest total scores have made only 6 per cent of the adaptations. Therefore, when we think of 183 adaptations being slightly more than one third diffused throughout the villages and cities of Pennsylvania, it is fairly accurate to think of them as being concentrated in half of the communities.

Concentration is far more marked in some groups of adaptations than in others. This is shown by groupings in Table 6. The greatest concentration is in the section, *The Individual and the Educational Program*. The next in degree of concentration are the sections on *Flexibility of the Curriculum*, *Breadth of Curriculum*, *Fields of Learning*, *Instructional Materials*, *Supervision of Instruction*, and

TABLE 6

Concentration of Adaptations in Highest and Lowest of Thirty-six Individual Communities

ADAPTATION GROUPS	Per Cent in the Five Communities Having Lowest Scores of All Adaptations	Per Cent in the Five Communities Having Highest Scores of All Adaptations
I. CLASSROOM INSTRUCTION		
A. THE CURRICULUM		
1. Flexibility of Curriculum	2	38
2. Breadth of Curriculum	8	32
3. Courses of Study	2	25
B. PUPIL ACTIVITY		
1. Fields of Learning	2	37
2. Extracurricular Activities	6	27
3. Instructional Materials	3	34
II. SPECIAL SERVICES FOR INDIVIDUAL PUPILS		
A. PUPIL RECORDS AND ATTENDANCE		
1. Educational Accounting	14	23
2. Census and Attendance	8	29
B. PROVISION FOR INDIVIDUAL DIFFERENCES		
1. Guidance: Educational and Vocational ...	9	23
2. The Individual and the Educational Program	8	41
3. Health Service	5	25
III. EDUCATIONAL LEADERSHIP		
A. SUPERVISION AND SCHOOL ORGANIZATION		
1. Professionalization of Personnel	8	22
2. Supervision of Instruction	4	33
3. Grade and Subject Organization	0	33
B. SCHOOL ADMINISTRATION AND THE COMMUNITY		
1. Administrative Planning	2	27
2. Status of Control	1	29
3. Scope of School Influence in the Community	6	29

TABLE 6 (Continued)

ADAPTATION GROUPS	Per Cent in the Five Communities Having Lowest Scores of All Adaptations	Per Cent in the Five Communities Having Highest Scores of All Adaptations
IV. PHYSICAL FACILITIES AND BUSINESS MANAGEMENT		
A. THE SCHOOL PLANT		
1. School Plant Planning	5	18
2. The School Site	8	26
3. School Buildings	5	26
4. Special Rooms	4	29
B. BUSINESS MANAGEMENT		
1. Supplies and Equipment	7	28
2. Financial Accounting	9	18
Total	6	28

* This table should be read as follows: Of all instances noted where the "flexibility of curriculum" adaptation had been made, 2 per cent occurred in the five communities which had the lowest over-all score on adaptability, while 38 per cent occurred in the five communities rating highest in general adaptability.

Grade and Subject Organization. The least concentration is found in the last subdivision, *Financial Accounting, School Plant Planning, Professionalization of Personnel, Educational and Vocational Guidance, and Educational Accounting.*

A detailed description of the nature of the educational programs in high, middle, and low rating schools is given in Chapter VIII in connection with the study of school expenditures. (See pp. 183-191.)

Summary and Implications

The adaptations which we have studied are a sample of a much longer series of adaptations which could be drawn out of the developments in education in the last thirty or forty years. When one sees the scope and variety of these adaptations and the part that must be played in meeting them by school boards, teachers, and community, one realizes the size of the task of operating a

modern school and the tremendous strain current demands for change put upon a school system.

The challenge with which we are concerned is the system of local initiative. If local initiative is to be interpreted as freedom and responsibility for action on the part of community, administration, and the teaching staff, it is apparent that it can function effectively only with a teaching and administrative staff far superior in ability and training to that which was required to meet the educational problems of change we were aware of forty years ago.

To most readers the situation will be disturbing. There is none of the doubtful comfort that would come from saying that it is explained by the inadequacy of district organization. The small rural districts are largely ruled out. Nor can it be said that the results flow from unusually poor financing. These schools are, and have been for at least two decades, somewhat better financed than those of the average state. Again the situation cannot be laid to a poor state department of education. During the period studied, Pennsylvania has ranked well above average in this respect. Again it cannot be due to any unusual shortcomings in the teacher-training institutions, since during this period Pennsylvania has had at least average eminence in her teacher-training leadership. No, here are American schools somewhat better than we will find them for the average of more than thirty million children.

These results cannot fail to give pause to persons and groups interested in maintaining schools as well as we now know how to maintain them. Are current large-scale efforts to bring new practices into existence—for example, the Progressive Education Association's Eight-Year Study, the New York State Regents Inquiry, and the Implementation Committee of the National Association of Secondary School Principals—proceeding on the assumption that objectives generally agreed upon by the leaders of movements of a generation ago are already widely practiced? Have past movements that filled our professional journals and captured the center of the stage in our conventions left little residue in improved practice? Is it possible that we have given too much emphasis to the new? Has the method of financing our institutions of national influence had something to do with this demand for emphasis on the new? Is it

possible that our state teacher-training institutions are so much concerned with copying national institutions, or so lacking in clarity in objectives, that they have failed to take advantage of their opportunities after the movements of earlier years? Are professional groups so hampered by economic problems that they are unable to assume leadership in school improvement in terms of long-established objectives and methods? Are state departments of education so concerned with the job of keeping the mechanism of the educational system oiled and repaired that they do not have time to assist in the hand work that supplements the work of the machine? Have local leaders been led to limit their effort to keeping untoward things from happening, with the result that creative opportunity is lost sight of or is non-existent? Do present-day teachers lack the ability and training to do the things which the profession agrees upon as desirable and necessary? Are administrators aware of the importance of understanding teachers as persons, their fears, their drives, their conceptual pattern of what is required for success? In summary, is the design of our American school system such as to deny adaptability?

But there is another point from which we may view these results. It is customary for us to speak of the lag of schools and we may easily bemoan the fact that very few of this sampling of 183 adaptations have become as much as 50 per cent diffused. On the whole, however, when one considers that the period of what might be called a real beginning of professional training for teachers and administrators has had a life hardly longer than that of the recognition of most of the needs detailed here, one cannot but marvel at the amount of diffusion. Particularly is this so when it is realized that we have placed our faith for diffusion to a very large extent upon the initiative of individual communities and have given but little attention to the problem of how diffusion actually does come about.

CHAPTER II

Time Diffusion Patterns of Nine Adaptations

IN THE previous chapter we described the extent to which a large sampling of adaptations have diffused through Pennsylvania. For the most part they have emerged since 1910. Some of them have had ten, some fifteen, some twenty, some twenty-five, some thirty years in which to diffuse. Only in rare instances has diffusion approached the saturation point. For most educational practices it has covered less than a third of the State. In our study we have asked why these adaptations have diffused so slowly, what retarded them, and why. These questions can be answered only by studying the introduction and diffusion of given adaptations.

Accordingly we sought the places in which the nine adaptations chosen for special study were first introduced, looked into their origins, followed their spread from place to place, asked who were interested, why they were interested, and who and what helped and who and what hindered. The fortunes of these nine adaptations are the subject of this and the following chapter.

The knowledge of how adaptations have taken place is extremely limited. Most state and national programs, both official and unofficial, seem to assume a rapidity of diffusion belied by the facts. Studies of older adaptations carried on by Farnsworth¹ and Bateman,² concurrent with the present study, indicate that the process is a ponderous one. The time-consuming fits and starts of invention and application that preceded adaptations as we know them today are shown by Farnsworth in the case of five adaptations that ultimately reached the saturation point in certain eastern states. In the nineteenth century, at any rate, this preparatory period was longer than the complete period of diffusion. On examining Farnsworth's charts one may wonder whether or not many of the adaptations we accept as needed today are not experimental tryouts which will lead to more significant adaptations to needs not now well defined. It

¹ Farnsworth, Philo T., *Adaptation Processes in Public School Systems*, 1940.

² Bateman, E. A., *Development of the County-Unit School District in Utah*, 1940.

may be that the slow rate of diffusion of the kindergarten, for example, reflects a haziness of purpose that awaits a more thorough-going approach to the whole preschool education problem.

Again, Bateman's study showed a preparatory period to county unit consolidation in the state of Utah nearly three times as long as the time which elapsed from consolidation of the first county to complete diffusion of the adaptation. In the period that elapsed there emerged a new and more dramatic purpose. In the early period of promotion the purpose was to make graded schools possible—a case of reasoning from analogy with city schools. It seems that what finally brought about the change was the emerging need for high schools.

However this protracted process may be interpreted, it is of concern to all who are interested in improving our schools—state departments of education, professional groups, and non-official pressure groups. We believe that those who have the interest of the public at heart will profit by taking the trouble to make themselves aware of the fact that educational change is slow and complex. In so doing they may on the one hand attune their specific efforts with the more refractory reality and, on the other, interest themselves in manipulating the more tractable forces that promise to accelerate the process.

The Nature of the Nine Adaptations

The nine adaptations studied may be briefly described as follows:

The public kindergarten hardly needs definition. We are concerned here only with kindergartens supported wholly or in part through public funds.

Reorganized high schools include all forms of breaking away from the traditional organization of the school system into eight years of elementary school and four years of high school. Communities have done this in various ways. In many cases it involves a three-year junior high school and a three-year senior high school; in some cases a five- or a six-year high school.

Special classes for the mentally handicapped in the state of Pennsylvania are called classes for the orthogenic backward. This

adaptation suggests that school systems recognize the needs of youngsters of low intellectual abilities for special curricula.

Homemaking for boys is a relatively recent innovation, introduced in some communities by making available to boys on the junior or senior high school level the facilities of the home economics or domestic science laboratories for instruction in a variety of homemaking problems.

Adult leisure activities is one of the results of the wave of interest since the first world war in the education of adults. Primarily, this interest has dealt with formal instruction aimed at removing problems of illiteracy and problems of immigrant education. Interest here is limited to a more recent emphasis upon the non-formal or leisure needs of adults.

The integration of extracurricular activities refers to the transition from the extracurricular program conducted as an adjunct to the services of the school to an integration of these activities with the educational objectives of the school. This adaptation, though somewhat abstract, is nevertheless implied as a significant and distinct development in public education. High schools have had "extracurricular activities" for many years, but the effort to organize them in such a way as to fit them more adequately into the educational objectives of the school, either by curricularizing them or by placing greater emphasis upon their educational values, is a modern phenomenon.

Elimination of elementary final examinations reflects not simply a tangible change in a school but possibly several. As elementary schools have broken away from formalism and traditionalism and emphasis on the three R's or the content subjects, they have found it necessary to change the bases for promoting school children and for marking and grading them. In response to the many considerations of individual children other than their abilities to pass an arbitrary minimum standard on a final examination, this old yardstick has given way to other measures. A symptom of this change is the elimination of the final examination for the promotion of children in elementary grades.

Integrated curricula refers to various forms of curricular reorganization which have received attention in recent years. Educational

literature makes many references to the integrated curriculum or the activity curriculum or the experience curriculum. Rarely does one find changes of this nature in the run-of-the-mill school. However, the rearrangement of the subject offerings in high schools, either through the merging of fields, such as English and history, or through more thorough reorientation of area, is considered in this study an adaptation in this category.

Supplementary reading. Children of the past generation only occasionally read books other than their own textbooks. With changes in the philosophy and psychology of education and our knowledge of the reading process, many schools are now attempting to emphasize extensive reading of many and varied books by school children for purposes of information or satisfaction of interest in ways which better suit the needs of boys and girls. Elementary schools which have made it possible for boys and girls to have access to abundant literary sources other than the reader or textbook from which they prepare their classroom recitations or lessons have been credited with this adaptation.

These adaptations represent a variety of types of change taking place in the schools. As noted above, some of them have diffused rapidly, others slowly; some over a long span of years, others over a short period of time. For the most part, they relate intimately to the direct educational task of providing services for children. Most of them are taken from sections of our check list of 183 adaptations having to do with classroom instruction and provision of services for individual pupils. The other sections of the check list involve adaptations in the areas of administration, school plant, and business management. They are of course related to instruction, but not so immediately.

In our community studies the purpose was not to appraise community educational services in terms of the adequacy of the particular adaptation concerned. Communities were rather liberally credited with adaptations if the barest rudiments were in evidence. This policy seemed most consistent with the dynamic aspects of the adaptability concept. Thus we have made allowances for the transitional aspects of educational change. For this reason, it must be noted, many adaptations reported for these communities were

changes in form only. The factors related to variations in quality or degree of adaptation in individual communities are discussed later in this volume.

These nine adaptations represent a great variety of characteristics. Such changes as the reorganization of the high school, the addition of a kindergarten or of a special class in a school system, are relatively concrete and objective. Just as it was easy by means of questionnaire or interview to determine whether or not changes in these areas had been made, so, within the individual community, these developments are readily discernible and apparent to the board of education, professional teaching staff, parents, the school children, and members of the public at large. To some extent, the introduction of homemaking for boys and adult leisure classes easily comes to the attention of contemporary observers. Moreover, these changes represent a distinct demarcation in practice. It is easy to establish the particular year when the kindergarten was added, or when the junior high school was organized, or when the first class for mentally handicapped children was formed.

This is not the case, however, with such changes as the abandonment of final examinations or the placing of emphasis upon extensive reading in the elementary school. Usually the history of the introduction of such adaptations in the individual school covers a long span of years of transitional development.

Differences in the element of cost are also of interest. Thus we find that in the minds of local community groups there frequently is cost opposition to the kindergarten, the reorganization of high schools, the organization of special classes, and the provision of opportunities for children to undertake extensive reading. The first three usually involve changes in the school housing facilities of the local system or increases in the professional staff. In the case of supplementary reading, cost opposition is encountered in those communities which are so distressed financially that budgetary increases in funds allotted to the purchase of books will produce noticeable changes in the financial burden upon the local taxpayer. It is not necessary to mention here that attitudes and opinions which produce opposition based on financial arguments are usually not results of thoroughgoing considerations of facts and

probable consequences. Available evidence shows, for example, that in the long run junior high school education costs no more than the education of the same children when grouped in the old elementary school and high school classes.³ However, since most changes in the organization of high schools took place at a time when enrollment increases necessitated expansion of the building program, we find opposition to the change, not in terms of the relative values of the junior high school over traditional forms of organization in providing better educational opportunities, but opposition based primarily upon motives stimulated in anticipation of a local bond issue which will increase the indebtedness of the local community and the tax rate of the individual property owner.

Our study of these nine adaptations was made in our large sample of 344 communities and the smaller sample of forty-eight communities. The large sample of 344 districts upon which the study of the growth of the nine adaptations is based represented a 68 per cent return on questionnaires sent to 508 districts in the State, all first, second, and third class districts, and a random one-tenth sample of fourth class districts.⁴ The questionnaire gave information on both the presence and the absence of each adaptation and the time of introduction if the community had made the adaptation.

*The Diffusion Chart*⁵

Figure 1 shows the nine adaptations charted in terms of time periods and amount of diffusion. It was found that the composite portrayal of the fortunes of the nine adaptations was facilitated by their treatment in periods roughly defined by the terminal periods of the decades since 1900. For example, we know that in education, as in many other aspects of the social scene in America, unusually marked transformations were taking place between approximately 1895 and 1905, a period commonly designated as the turn of the century. The cumulative effect of these changes is noted in the first decade of the present century. The second decade of the

³ Gooch, Wilbur I., *Junior High School Costs*. New York; Bureau of Publications, Teachers College, Columbia University, 1934.

⁴ A check on the representativeness of this 68 per cent return appears in Supplement B, pp. 445-446.

⁵ See footnote 1, p. 5.

	1900	1910	1920	1930	Present
FOURTH LEVEL: Later Diffusion or Implementation Period					
					EXTENSIVE READING
					EXTRA CURRICULAR ACT
					REORGANIZED H S
THIRD LEVEL: Early Diffusion less than 25 percent maturity					
					EXTENSIVE READING
					EXTRA CURRICULAR ACT
					REORGANIZED H S
SECOND LEVEL: Experimentation (Introduction Period) Less than 5 percent maturity					SPECIAL CLASSES
					EXTENSIVE READING
					KINDERGARTEN
					SPECIAL CLASSES
FIRST LEVEL: Initiative Combination and Theory (Pre-introduction)					REORGANIZED H S
					KINDERGARTEN
					EXTENSIVE READING
					EXTRA CURRICULAR ACT
					ADULT LEISURE
					ADULT LEISURE
					BOYS' HOME MAKING
					BOYS' HOME MAKING
					INTEGRATED CURRICULA

Figure 1. A Quarter Century of Adaptation in Pennsylvania as Represented by Nine Adaptations

century is quite unique because of accumulated forces which began to operate immediately after 1910 and because of the first world war. The last two decades are effectively divided by circumstances taking place between 1928 and 1930 at the onset of the economic depression. These periods are indicated in Figure 1 by broken vertical lines. The lines are drawn as they are, somewhat arbitrarily, because there is no fixed point at which one can see where changes in the phases of a cycle or a movement in education have taken place.

Horizontally the chart shows four developmental divisions. The first level represents that phase which involves inventive combination and theoretical development. The second level represents that period in the life history of an adaptation immediately following its original introduction. For simplicity we have called this the period of experimentation. During this phase of its development an adaptation is being applied practically in actual situations. This period, of course, still involves large elements of inventiveness. Generally speaking, an adaptation may be considered to be at this level until at least 3 per cent of saturation has been reached.⁶

The third level (early diffusion) has been reached by an adaptation when more than 3 per cent of the districts have made the transition. The diffusion of the adaptation is considered to remain at this level until the period of marked change in rate of increase is observable or until diffusion has taken place in at least 25 per cent of the districts. When the adaptation has reached this point, it then passes to the fourth level, the secondary period of diffusion. By this time it has existed long enough to be generally accepted by the educational profession as valid and needed.

When the adaptation is on the second level it has not yet reached wide acceptance. We find abortive attempts here at introduction and frequent abandonments of the change which in most cases is

⁶ Saturation is here somewhat arbitrarily defined. For reasons pointed out below, it is quite possible that the actual maximum number of districts which might reasonably be expected to have kindergartens or special classes, for example, might be much less than the total number of districts in each sample. Although the need and opportunities for change in districts vary greatly, our picture is not greatly distorted at this point by assuming that 100 per cent saturation is to take place when all districts in our sample have made changes to meet the needs underlying each adaptation here studied.

made in the spirit of experimentation. Problems on the third level are chiefly problems of diffusion or the passing of the change from one community to another. On this level, however, the experimentation has not entirely disappeared but procedures have been developed, and communities which are in a position to take on changes as early introducers find it possible to do so, even before the merits of the enterprise have been fully recognized.

The Period Immediately Preceding the Turn of the Century

As may be seen from the chart, only two of our nine adaptations—the public kindergarten and special classes—had emerged beyond the inventive combination and theory phase by the year 1900. Even these two had appeared only in their initial stages. At this time they were still on the experimental level in the United States as a whole, and particularly in the state of Pennsylvania.

The first public kindergarten in the United States had been introduced only thirty years before (1873). However, there had been private kindergartens as early as 1868 in Boston and 1877 in New York. During this period kindergartens were not yet generally accepted as an integral part of the public school system, although much progress was being made in the promotion of kindergartens by individual leaders, philanthropic associations, churches, and welfare organizations.

The American public school system had not yet achieved its own individuality. America was still strongly influenced by Europe. Thus we find the leadership of developments in Germany, Italy, England, and other European countries having much to do with the pattern of kindergarten development and such adaptations as the development of industrial education. The kindergarten was being introduced experimentally in large cities, Philadelphia in 1887 being the first Pennsylvania city. By 1892 four cities in Pennsylvania had public kindergartens, while in the whole United States 137 cities had public kindergartens.

In the nineteenth century and earlier the attitudes toward handicapped children were unsympathetic and unscientific. Near the close of the nineteenth century we find classes being introduced for

"disciplinary, incorrigible and truant boys." Here again the initial steps were taken by large cities. But the purpose of the adaptation in this early phase was the mere segregation of problem children for administrative convenience. The very earliest experimental phase of this change in the public school system was beginning to terminate at the turn of the century. As with the kindergarten, such help as handicapped children were to receive resulted from the work of individual philanthropists and societies for charitable work. Much progress has been made through private initiative in developing institutions for the blind, the deaf, and the dumb, and by the middle of the nineteenth century for the feeble-minded. Interestingly enough, institutions for the mentally and physically handicapped were financially aided in Pennsylvania before the need for change had been recognized by the public school system.

Genuine introduction of the remaining seven adaptations did not appear before 1900, although the roots of some of these changes had existed for many years. As for reorganizing the high school program, there had been scattered cases of re-grouping of classes, but not with any fundamental change in curricular offerings. It is reported that the Boston Latin School was organized on a six-year basis as early as 1835. Chicago had a six-year high school organization near the close of the nineteenth century. However, at the turn of the century the junior high school had not yet been invented. Secondary education itself was not a part of the public school system in Pennsylvania in the early nineteenth century. Beginning only in 1887 were laws passed authorizing the establishment of public high schools. Such secondary education as we had until about 1890 was provided almost exclusively by private academies.

Extracurricular activities in the high schools are as old as our system of education itself. But before 1900 teachers and principals were largely hostile to these activities and expressed the fear that they would encroach upon the time of the regular school subjects. As we know it today, the extracurricular program of the high school has been developed within the past forty years.

A new philosophy of education had been accumulating, but thought had not been organized to the extent that curricular changes could be anticipated at this early date. According to one writer on

the curriculum, the movement for the integration of the curricular offerings of the schools dates back to the writings of Herbert Spencer in the middle of the nineteenth century. It was he who re-stated tenets of earlier reformers, emphasizing such doctrines as self-instruction of children and learning under the impulsion of interest.

But the American school system was much too new for adjusting to demands for reform. Only since 1834 had the Pennsylvania school system become free. Rate bills were not abolished in New York State until 1867. It was not until the end of this period that the growth of the high school began to be nation-wide in its scope. Only near the close of this period had normal schools and teachers' colleges been provided to train the many teachers needed in the American schools.

In the elementary schools the promoting of pupils on the basis of written examinations was almost universal, even though a number of investigators had, by 1900, discussed the evils of the examination system and the unreliability of teachers' marks. Not until the end of the first decade of the present century did communities in our large sample in Pennsylvania begin to modify their promotion policy and abandon emphasis on the final examination in the grades.

The textbook dominated the classroom when it was not itself overshadowed by the teacher and the hickory rod. However, toward the close of the nineteenth century, through the German and the psychological influences in education, changes were initiated in the nature of reading content for school children. The early religious emphasis of the colonial period in the teaching of reading had given way to a nationalistic-moralistic emphasis which continued on through the major part of the nineteenth century. But by this time there were many leaders who were questioning the current practices. Pestalozzi had advanced theories holding that the child should not learn a book and that the teacher was not to hear the child recite from a book. Language was to come from oral descriptions, based on sense experience, and not from reproductions of a printed text. Herbart had proposed that interest itself is the *sine qua non* of learning. He also advanced the doctrine of correlation, which held that school subjects should not be itemized.

Froebel also had advocated a method of self-activity which led to the kindergarten idea and to new values being placed on hand-work and nature study in elementary education.

From the foregoing it appears that although the elements of what was to come had been considered by a few men, public education as we know it today hardly existed prior to the years at the turn of the century.

The First Decade of the Present Century

As may be seen in Figure 1, the introduction of special classes and the introduction of kindergartens in the Pennsylvania school system proceeded haltingly during the first decade of the new century. The growth of these movements was still experimental. However, we find at the beginning of the century the emergence of two more of the nine adaptations: the provision of extensive reading opportunities for elementary children and the reorganization of high schools.

By 1903 the kindergarten growth was well under way throughout the United States. Pennsylvania was somewhat laggard, but in the country as a whole there were 440 cities with public kindergartens. But it was still an adaptation exclusively of the urban center. A more rapid rate of diffusion of special classes had taken place in large cities. This movement began to draw support from scientific investigations, initiated during this decade, advancing psychological and biological measurements. The first special class in Pennsylvania in a local public school system had just been introduced.

In 1900 the battle for universal free education had been won and Pennsylvania, along with other states, introduced attendance laws bringing into the public school system all children—those mentally and physically and socially fit to do the academic work of the nineteenth century school and those for whom the old curriculum was not adequate. Such changes began to reveal the needs later to be met by other changes as well as the need for the four adaptations already emerging.

By the end of this period the junior high school idea had been created. The first public school systems in the country reputed to

have developed this plan of organization are Berkeley, California, in 1909 and Los Angeles, California, in 1910. In the early part of the new century several movements were under way to influence re-organization. In the first place there had been a tremendous increase in secondary school enrollment and in the number of secondary schools, both in Pennsylvania and in other states. Moreover, there had been an increase in the non-academic high school population. Related to this was the tendency for schools not otherwise responding to the demands of the changed population to break, in part, from college entrance objectives. Increased attention was being given to the problem of the high incidence of elimination of school children in the upper elementary grades, this phenomenon being attributed in large part to the restrictive character of the secondary school. Furthermore, developments in the psychology of the individual and the psychology of adolescence, leading to the guidance movement, lent impetus to the types of adjustment characteristic of the junior high school.

Historians claim that from 1900 until the first world war was a period of transition for extracurricular activities. Extracurricular activities in the high school, according to one of its students, were passing through a period of non-interference. Largely through the demands of children themselves for informal experiences not to be had in the classroom, professional people permitted them to exist so long as they did not interfere with the work of the curriculum.

In the curriculum itself the first significant experiments in curricular reconstruction were being undertaken by Dewey, Meriam, Parker, and others. The intellectual battle was still being fought over the theory of formal discipline and faculty psychology. For the vast majority of the schools these influences had not been felt and the four adaptations which had actually appeared in public schools were diffusing only slowly.

The Second Decade and the First World War Period

It was only during the second decade of the new century that the fragmentary efforts of early experimenters and theorists penetrated our national thinking to the extent that pronouncements on these subjects became articulate for the great mass of American school

systems. The public kindergarten was no longer an experiment. It had behind it more than a quarter of a century of history. Yet, in Pennsylvania, as in several other states, it had not yet reached a stage of growth which one would consider the approaching of maturity.

With the industrial development of the country and the availability of a greater quantity of books at reduced cost for school children, a number of communities in the state of Pennsylvania were in a position to break away from the narrow restrictions of the single basal reader. Thus we find paralleling the period during which reading objectives held utilitarian aims in high rank, from 1910 to 1925, an increase in some school systems in the variety and amount of reading matter available to young children.

For school districts at large, special classes for handicapped children were still an unusual service. But the greatest rate of diffusion throughout the United States as a whole of special classes for handicapped children in large cities took place just prior to the first world war. By 1920 this adaptation had received acceptance as a part of the school program in many school districts other than the large cities.

During this period the junior high school passed from infancy into adolescence. From an examination of national committee reports during this decade it was apparent that there was a growing conviction that secondary schools should give pupils something more than preparation for college. In 1914 the National Education Association indicated that it had become committed to the plan of the junior high school. However, in spite of this endorsement, it was not until the next decade that the junior high school became widely accepted. Undoubtedly the discussions of this period on a nationwide scale by professional organizations and groups greatly accelerated the diffusion of this adaptation. By 1917 Pennsylvania was ahead of the majority of states in the number of reorganized high schools. In 1918 the first college course in the junior high school appeared and in 1919 Bennett's *Junior High School*, the first book on the subject, came from the press.⁷

⁷ Bennett, G. Vernon, *The Junior High School*. Baltimore, Md., Warwick and York, Inc., 1919.

Changes taking place during the war brought about a different perspective with reference to extracurricular activities. But by and large, the high school in Pennsylvania and, for that matter, the high school in the United States as a whole, had not yet made the extracurricular activities program an integral part of the work of the school.

As for changes in the high school curriculum itself, the period of early curricular revision in experimental and laboratory schools was now terminating. A change in point of view appeared in the report of the 1918 Commission on the Reorganization of Secondary Education. In this same year Bobbitt's book on the curriculum was published, and in 1920 one by Bonser. In scattered and isolated cases experimental work and revision of the school program were taking place in public schools. The activity of laboratory schools led in 1918 to the formation of the Progressive Education Association, which, until the last decade, had little influence over the vast majority of public schools.

With increased emphasis upon individual differences and increased dissatisfaction with teachers' marks paralleling the development of the scientific movement in education, came the introduction of various individual bases of promotion which appeared from the war period on through the 20's. During the decade under consideration, the abandonment of the final examination as the sole basis for promotion in elementary schools was furthered by studies in promotion and retardation of school children and other movements which tended to break down a uniform standard of mastery-of-fundamentals type of educational program.

The adult leisure classes now appeared in the expanding school program. This development was in great part a parasitic transition rather than a purposive effort to provide adults with better opportunities for making better use of their leisure. In its early stages it was a relatively unimportant part of the movement for evening schools, part-time schools, immigrant classes, and Americanization classes, which reached a high point of nation-wide interest during the war period.

As early as 1915 a number of states had provided for immigrant education. By 1920 twenty-seven states had enacted permissive

legislation regarding it. By refraction of the formalistic and vocational objectives of the earlier aspects of the adult education movement, we find the emergence of leisure training for adults. In Pennsylvania there has been a legal provision for the education of children up to twenty-one years of age. The present law, which is purely permissive, was based on the code of 1911. Our sample of communities in the State indicates that the non-formal type of opportunity for adult education was just beginning to take form during the second decade.

Industrial America had seen gradual shifts from simple agrarian life to conditions severely altering traditions of the home and the family. More children were being kept in school. Child labor legislation and stricter enforcement of attendance laws, and increases in the minimum school-leaving age, had changed the pattern of life of urban American youth. By 1915 boys' groups were mentioned in connection with domestic science. A domestic science class for boys received publicity in the *Illustrated World* in 1916. In our large sample of communities in Pennsylvania, the first class of homemaking for boys was reported in 1913.

By the end of the second decade the educational system had taken on eight of the nine adaptations, but it was not until the following period of post-war prosperity that expansion became rapid enough to carry these projects over to the third and fourth levels of diffusion.

The Period of Post-War Prosperity

As a whole, the most phenomenal growth in the history of public education took place in the third decade of the present century. In Pennsylvania most of the nine adaptations were accelerated in their rates of diffusion during this period. An examination of Figure 1 reveals that two—the reorganizing of high schools and the vitalizing of extracurricular activities—reached the third and fourth levels of growth graphically represented.

Homemaking classes for boys is one adaptation in which the rate of expansion did not definitely increase during this period, but there was an accumulating interest in this adaptation, as is indicated by the number of articles in professional journals, which rapidly

mounted until the peak in 1931. There have been articles every year since, with as many as eight in 1937.

The homemaking-for-boys adaptation had barely taken root in Pennsylvania. There had been wide but sparse diffusion of the idea throughout the entire United States before the rapid growth in Pennsylvania from about 1930 on. The biennial report of the United States Office of Education states that throughout the country during the year 1925-26, forty-two of the forty-eight states reported some kind of home economics training for boys, which involved a total of 7,000 boys throughout the country.

Another adaptation which did not expand rapidly during the 20's is non-formal adult education. Of our 344 communities only six introduced this change during the period. Yet progress was being made in other phases of public adult education. The work of Thorndike and others on adult learning was being published. Extension education was being organized throughout the country and in the state of Pennsylvania in a way which would make possible machinery for changes to come in this area. Indicative of the accumulating importance of adult education at this time was the organization, in 1924, of the Department of Adult Education of the National Education Association, and, in 1926, of the American Association of Adult Education.

During this decade a very noticeable change took place in the rate of introduction of special classes for mentally retarded children. About six times as many classes in our sample were introduced as in the previous decade. In the country as a whole most of the state legislation regarding the education of mentally handicapped children has appeared since the first world war. This parallels somewhat the crystallization and diffusion of techniques of mental measurement and the spread of the scientific movement in education.

The reorganized high school was introduced in ten times as many schools in this decade as in the preceding period. During the short span of ten years this adaptation emerged from the stage of experimentation and passed through the early diffusion period on into the period of rapid diffusion. The greatest number of reorganizations in the state of Pennsylvania took place during this decade. The change was in no small degree attributable to active interest on the

part of the central government in Pennsylvania. The State Department of Public Instruction gave sufficient consideration to the problem to provide a special director of junior high schools.

The feeble progress of change in promotion policy and the use of final examinations in the elementary school came to an end. Techniques for the understanding of individual children had become available to an increasing number of school districts. The greatest change with respect to this adaptation took place in the decade 1920-30. The same may be said of placing new emphasis on the extracurricular activities in the high school. The rate of introduction of this adaptation, for our sample of 344, moved from an average of about one per year to more than ten per year.

The kindergarten had made some progress, but in the 20's its rate of diffusion had only doubled. Only fifteen of our 344 communities introduced kindergartens. Its growth was still quite slow in spite of the fact that a division of kindergarten and elementary education was organized by the State Department of Public Instruction in 1926.

In our sample the number of school districts per year which were introducing programs of extensive reading in elementary grades changed in this period from two per year to about seven. At the same time, we find an accumulating wealth of reading materials and of diagnostic and remedial methods for the improvement of reading instruction. Specialists refer to a report of the National Society for the Study of Education in 1925, which marks the beginning of a period of new emphasis on extensive reading. This movement had been supported by changes since the war in our fund of knowledge on reading instruction. Such studies as those dealing with the relationship of reading and interest undoubtedly had their effects. A break from the synthetic to the analytic methods of instruction in reading contributed during this time to change in reading objectives. There had been, furthermore, since the war, a movement stressing silent reading and the development of meanings which encouraged schools to break away from narrow textual instructional methods.

The gains of this period are looked upon by some with disfavor. The ultra-progressive, reviewing trends in education as they stand

today, would probably assess the contributions of the 20's as rigidifying.

The 1930 Decade

During the 1930 decade there was no appreciable change in the level attained by six of the nine adaptations. Two of them have progressed rapidly in recent years and the newest one has just emerged.

The kindergarten movement has been for three decades on a level of early diffusion. In 1932 Pennsylvania ranked thirty-third among the forty-five states and the District of Columbia in the percentage of places of 2,500 population and over reporting kindergartens. Of our 344 Pennsylvania communities only some 13 per cent had introduced kindergartens by 1937. Not until 1931 did Pennsylvania define the kindergarten by law as constituting an integral part of the elementary school system. The 1931 law was still permissive, but the kindergarten had the privilege of state aid which had previously been enjoyed only by the elementary school. The methods of state stimulation, however, were not sufficiently effective to protect the kindergarten from the slashes of depression economy. In 1933 the number of kindergartens actually declined.

For the country as a whole, some 55,000 children had been placed by 1930 in special classes for the handicapped, but estimates of the incidence of mentally retarded children in the school population suggest that approximately ten times as many children should have had such service. The latest available data show that there were in 1937-38, 611 classes for mentally retarded children in the state of Pennsylvania. With speech correction classes, disciplinary classes, classes for convalescents, tubercular classes, orthopedic, sight-saving, hard of hearing, and other classes, there were a total of 828 special classes in the State.⁸

The elementary final examination is losing out, but not at a rapid rate. One student of promotion policy reported in 1932, however, that two-thirds of the schools which he studied were using teachers' estimates of traits other than achievement as bases for marking children and determining who shall and who shall not pass.

⁸ Superintendent of Public Instruction, *Biennial Report, 1938*, p. 208.

The reorganized high school movement no longer carries the emphasis of the junior high school. At present, in Pennsylvania as in other states, statewide measures are being taken to place all high schools on a six-year basis, including grades 7 and 8. Transition in secondary education involves more than this. The junior college movement, for example, is also becoming a part of the picture of change in scope of the high school.

Tremendous changes continued to take place during this period in the extent of supplementary reading material. By now some two-thirds of the school districts in Pennsylvania included in our study have made substantial transitions in this area. This movement has reached a level of maturity far beyond that of any of the others. It is closely followed in extent of diffusion by the increasing number of high schools placing new emphasis on extracurricular activities.

The adult leisure education project has expanded rapidly since the depression period. During this time adult educational needs changed little from those prevailing as a result of forces operating for over a century, but they became more acute and received greater attention. Beginning in 1933 the United States Office of Education cooperated with the Relief Administration in programs administered by the various states. Funds were made available for this work through the Works Progress Administration in 1935, at which time the Pennsylvania legislature authorized the State to cooperate with the Federal Government in the program.

Almost the entire growth of the homemaking-for-boys adaptation has taken place since the year 1930.

The one change exclusively new, so far as schools which we studied in Pennsylvania are concerned, is the integration of the secondary school curriculum. In a number of instances prior to the depression significant changes had been made in elementary schools. Many of the earliest laboratory school experiments in private institutions had borne particularly upon elementary education. But the secondary school curriculum had changed, not through basic revision, but through the addition of vocational courses, commercial courses, and extracurricular activities, with the earlier subjects retained in most cases very much along their original lines. Obviously, so far as may be judged from Pennsylvania, the experience

curriculum movement is not yet greatly influential in public high schools. According to some writers the reaction against formalism, standards, and over-systematization of the scientific movement had brought on rapid acceleration of curriculum revision almost to the proportions of a "tidal wave." It appears that this wave has not yet inundated Pennsylvania.

*A Comparison of Growth Rates and Levels
of Diffusion Attained*

The foregoing description of the evolution of schools in Pennsylvania as represented by nine adaptations has revealed the interrelationship of many factors involved in their diffusion. Viewing these adaptations as nine specific elements of change, we can see that historically the evolution of the school is made up of a succession of interrelated changes. A summary of the growth of these nine adaptations, which have been treated together in previous sections, appears in Tables 7 and 8.

Table 7 presents the dates by which the several adaptations reached various levels of maturity in terms of our sample of 344 Pennsylvania districts. It may be observed from this table that the kindergarten was the first adaptation to reach the level of early diffusion, having attained the three per cent point in 1912. This was followed in 1915 by provision of extensive reading opportunities, after which there was a wide gap in time until the early diffusion phases of reorganized high schools, special classes, and vitalized extracurricular activities attained in the three per cent stage in 1920. These changes were in turn followed by the emergence, beyond the three per cent point, of elimination of final examinations in 1924, of adult leisure classes in 1929, and of homemaking for boys in 1931.

This table also shows the various extents to which the nine adaptations had developed at given times. Supplementary reading and extracurricular activities had, by 1933 and 1935 respectively, attained diffusion in half the districts. High school reorganization had progressed to the 40 per cent maturity level by 1937. The remaining innovations descend in level of maturity down to the integrated curriculum, which is still, in large part, on the level of inventive combination and theory as far as the actual work of public schools

is concerned. Scanning the various columns of this table, one is impressed with the high frequency of dates in the 20's and the 30's.

TABLE 7

*Years at Which Growth of Nine Adaptations Reached Various Levels of Maturity
(Based on Sample of 344 Pennsylvania School Districts, 1937)*

ADAPTATION	LEVEL OF MATURITY AS PER CENT OF ALL DISTRICTS							
	First Intro- duction ^a	3 Per Cent	5 Per Cent	10 Per Cent	20 Per Cent	30 Per Cent	40 Per Cent	50 Per Cent
Kindergarten	1887	1912	1919	1931	— ^b —	—	—	—
Reorganized High Schools	1910 ^a	1920	1922	1924	1927	1931	1937	—
Special Classes	1901	1920	1922	1926	1935	—	—	—
Homemaking for Boys . . .	1916	1931	1933	1936	—	—	—	—
Adult Leisure Classes . . .	1906	1929	1932	1935	—	—	—	—
Extracurricular Activities.	1902	1920	1923	1925	1928	1930	1932	1935
Elimination of Final Ex- aminations	1900	1924	1926	1929	—	—	—	—
Integrated Curricula	1926	—	—	—	—	—	—	—
Supplementary Reading .	1900	1915	1918	1922	1927	1930	1931	1933

^a First introduction observed.

^b Blanks indicate that by 1937 the adaptation had not yet reached the stage of growth indicated.

^a Cases that some might classify as "reorganized high schools" appeared as early as 1898.

This observation, along with the consideration of variations in levels of maturity of the nine adaptations, suggests the recency with which these changes have taken place and indicates clearly the fact that the process is not, in any sense, complete. It is still going on.

Table 8 presents material showing the comparative rates of growth of the nine adaptations during different stages of development. From this table the slowness with which kindergartens have diffused is very apparent. It took twelve years for the number of kindergartens to increase from 5 per cent to 10 per cent of all districts. The slowing up of diffusion of special classes and reorganized high schools is another point of interest.

The similarity between the remaining figures in the table is of interest. The time spans for the most part are two, three, and four

years. With the exceptions noted above, it has taken approximately two or three years for adaptations to change from the 3 per cent

TABLE 8

Time Span in Years Required for the Growth of Adaptations Between Various Levels of Maturity
(Based on Sample of 344 Pennsylvania School Districts, 1937)

ADAPTATION	LEVEL OF MATURITY AS PER CENT OF ALL DISTRICTS						
	0 to 3 Per ^a Cent	3 to 5 Per Cent	5 to 10 Per Cent	10 to 20 Per Cent	20 to 30 Per Cent	30 to 40 Per Cent	40 to 50 Per Cent
Kindergarten	25	7	12	— ^b	—	—	—
Reorganized High Schools	10	2	2	3	4	6	—
Special Classes	19	2	4	9	—	—	—
Homemaking for Boys . . .	15	2	3	—	—	—	—
Adult Leisure Classes . . .	23	3	3	—	—	—	—
Extracurricular Activities.	18	3	2	3	2	2	3
Elimination of Final Ex- aminations	24	2	3	—	—	—	—
Integrated Curricula	—	—	—	—	—	—	—
Supplementary Reading .	15	3	4	5	3	1	2

^a From first introduction noted to 3 per cent.

^b Blanks indicate adaptation has not yet reached upper level indicated.

level to the 5 per cent level, a similar amount of time to diffuse through the next 5 per cent to attain the 10 per cent level, and generally two or three years for each additional 10 per cent.

Tables 7 and 8 do not indicate accurately the amount of time necessary to reach the first 3 per cent level. The reason for this is that we could not be certain that the first introduction in the state was in one of the 344 districts studied. From the first introduction noted, however, it is safe to say that it has taken from three to eight times as long to reach the 3 per cent level as for each of the other steps. This estimate is conservative. Since for four of the adaptations this ratio is five or six, it will be safe to say that the first step takes five times as long as the other steps. It takes about seven times as long for the first 10 per cent diffusion as for the second, third, fourth, or fifth 10 per cent. Figure 2 summarizes these find-

ings. They are supplemented by Farnsworth's findings for the pre-introduction and post-sixty per cent diffusion periods.

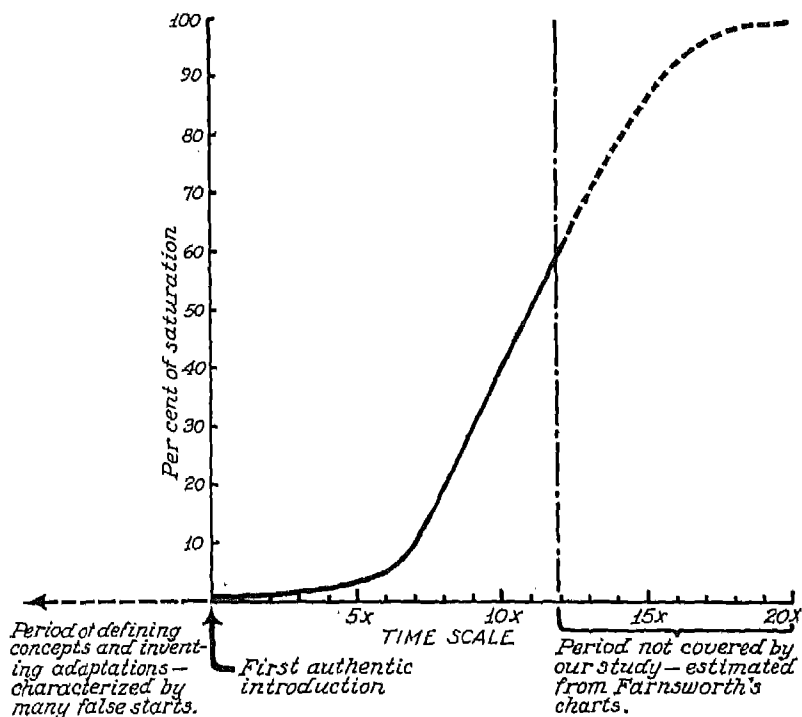


Figure 2. Composite Diffusion Chart Based on Nine Adaptations

The Time of Introduction in a Single Community

Usually there has been a long preparatory period of recognition of need, manipulation of trial solutions, and efforts to obtain public support in a community before an adaptation is put into operation. This is well indicated by the experience in one of the larger communities which is rated as having made eight of the nine adaptations.

This community had gone along in a self-satisfied manner for fifty years. Its buildings had become old and small; its method of administration was inadequate. The school board was elected by wards

and had more than fifty members. Almost everyone took a "ward's-eye" view of the schools. At the end of the first decade of this century the school board was dominated by a single forceful character, who, while honest and sincere, thoroughly believed in an inexpensive school program. The property interests of this man and of his friends were weighted heavily in the direction of a low property tax. In 1910 only two of the eight adaptations had been made—special classes had been introduced in 1907, kindergartens in 1909.

After reorganization of the school system, something of a city-wide view came into the picture. Special classes were improved; a school museum was introduced. But the new board soon became dominated by the man who had been president of the earlier board. During a decade of large increase in population and wealth, no school buildings were erected and existing buildings went without paint and necessary repairs. In spite of these increasingly bad conditions, board members continued to be elected on a program of keeping down taxes. The same was true of other public officers.

The increasingly bad conditions resulted in a dramatic incident—a strike by six teachers, joined by a number of students. Low salaries and inadequate buildings were the main issues. But alleged favoritism on the part of administrators toward teachers was an important irritant. One of the results was the organization of a parent-teacher association and the winning of support of a number of prominent citizens to a program of better schools. The first result was the defeat of the invincible school board president.

Within a period of five years the new element had obtained a majority on the board. One of their early acts was to ask the State Department of Public Instruction to survey educational needs and propose what was needed in the way of buildings. Under the leadership of a dynamic teacher in the school system, a man who had been responsible for one of the earlier adaptations, a militant program was carried forward for new buildings. Swept in with the new program were some of the adaptations then a part of the climate of educational opinion, adult education and reorganized high schools, followed soon by homemaking for boys and the integration of extracurricular activities. These are, of course, only those adaptations which were represented in our group of nine. Many other adapta-

tions, which show up in our more complete survey, came in at this time. The shift in community attitude in schools continued forward, carrying the supplementary reading adaptation along with others in 1930, and making this community one of the first to introduce integrated curricula in 1933.

We do not give this case as one which is common, although there can be no question that new building programs facilitate a whole array of new adaptations. The awakening of a community necessary to the success of a building program provides an opportunity to make the changes as incidental. It is possible that the need for new buildings required by an increase in school population in the early decades of this century had a good deal to do with the adaptations that took place, and that in a period of declining school population we may find a definite slowing down of the adaptation process.

But the point we wish to make here is that the introduction of adaptations may often be opportunistic. Sometimes they are prepared for over a period of years and at other times they are swept in with little consideration as "the thing to do" at a time when the opportunity for change occurs.

Time Required for Complete Diffusion

Table 8 has additional value in revealing the time required to bring about complete diffusion of new practices or innovations in education. From Table 8 are drawn directly or by estimation the data in Table 9 for eight of the nine adaptations. Half of the eight adaptations under study will require more than fifty years to reach approximately complete diffusion from the beginning of early experimentation and invention. Even when the time is gauged from the 3 per cent point, the median estimated time is thirty-three years. Farnsworth's⁹ and Bateman's¹⁰ studies show that the lapse of twenty-five to fifty years is not unusual between first recognition of need and the first practical inventions which lead to experimental introduction.

Unless steps are taken which will induce more rapid spread of desirable educational innovations in our public school system, this

⁹ Farnsworth, *op. cit.*

¹⁰ Bateman, *op. cit.*

TABLE 9

Total Time Required for Diffusion of Eight^a Adaptations

	TIME ELAPSED TO INDICATED LEVEL OF DIFFUSION		ESTIMATED TIME FOR REACHING SATURATION ^b	
	From First Introduction Noted	From Three Per Cent Diffusion Point	From First Introduction Noted	From Three Per Cent Diffusion Point
Adaptations that have reached 50 per cent diffusion:				
Extracurricular Activities	33	15	46	28
Supplementary Reading	33	18	48	33
Adaptations that have reached 40 per cent diffusion:				
Reorganized High School	27	17	49	39
Adaptations that have reached 20 per cent diffusion:				
Special Classes	34	15	74	55
Adaptations that have reached 10 per cent diffusion:				
Kindergarten	44	19	134	109
Adult Leisure Classes ..	29	6	56	33
Homemaking for Boys ..	20	5	43	28
Elimination of Final Examinations	29	5	52	28
Median			50	33

^a Integrated Curriculum omitted here because of its short history.

^b Since the time for going from 3 per cent to 5 per cent, 5 per cent to 10 per cent, and for each additional 10 per cent is approximately constant, a crude basis was formed for these estimates. An adaptation that had reached 50 per cent had gone through six time units since the 3 per cent point and had five more to go. In the case of supplementary reading the time yet to go was $5 \times \frac{18}{6}$, or 15 years.

This figure added to the first two columns gives the last two columns.

condition must be assessed, along with the inadequate status of general adaptation portrayed in the previous chapter, as a serious challenge to the present structural design and the present methods of operation of our schools. It might be said that we are hard to start, slow on the pick-up, and the flow of power is sluggish throughout.

Summary

The diffusion of these nine adaptations is a slow process. Particularly slow is the early introduction period. After the first 10 per cent of diffusion, the curve is characteristically regular. On the average, it takes seven times as long for the first 10 per cent of diffusion as for the second, third, fourth or fifth 10 per cent. From these charts we may infer that it will take a half-century for the average adaptation to diffuse completely; it takes a third of a century after 3 per cent of the districts have made the introduction. Frequently there has been a long period of preparatory work in a community before the adaptation step is taken.

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CHAPTER III

The Geographical Diffusion Patterns of Nine Adaptations

THE spread of the nine adaptations through the State was followed in order to discover whether or not there are factors operating in areas larger than the community but smaller than the State which affect the adaptability of the school system, and also to discover any characteristic patterns of diffusion that might throw light on future efforts. For this purpose the State was divided into twelve regions. These regions were defined from a study of physiographic, demographic, and economic data from various sources. Their characteristics are shown in Figure 3 on the opposite page.

Regional Variations

Figure 4 shows the regional distribution of adaptations in the large sample of 344 districts in terms of the number of the twelve adaptations¹ reported to have existed in each district. No district had more than eleven of the adaptations; some had none. Figure 4 shows the average number of adaptations for all communities reporting in each region and the rank of the regions in average extent of adaptability thus indicated. In the Philadelphia Region (Number I) the average number of adaptations out of a possible total of twelve was 5.2. Next in rank was the Central and Cumberland Valley Region (Number V) with an average of 4.9. The regions in the central part of the State, Numbers VI, VII, VIII and IX, ranked lowest among the twelve.

Slightly different data are presented in Figure 5, which shows the percentage of highly adapted districts reported in each region. Figures shown are the percentages of districts having seven or more of the twelve adaptations. It may be seen that, broadly speaking, the regions which have the highest average level of adap-

¹ In previous chapters we discussed *nine* adaptations. In the present analysis we are including three other adaptations not covered in field work, but included in our original questionnaire: distributive trades courses, visiting nurse service, and individual instruction in the elementary school.

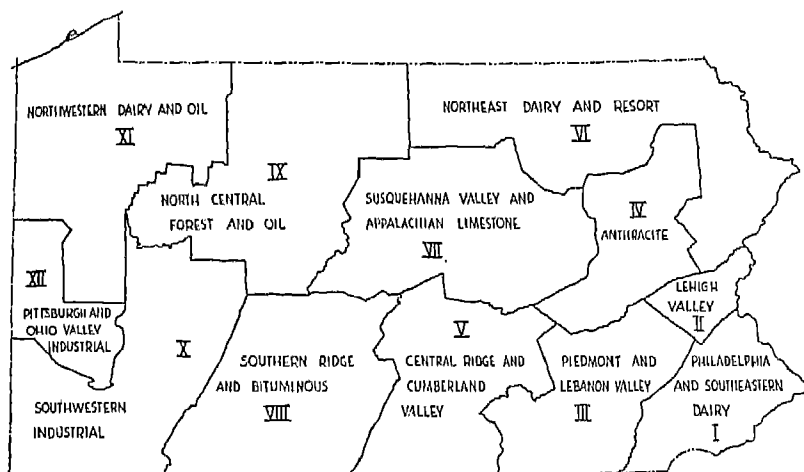


Figure 3. Twelve Pennsylvania Regions

CHIEF CHARACTERISTICS OF TWELVE REGIONS

- I. *Philadelphia and Southeastern Dairy*—Densely populated urban and industrial area of metropolitan Philadelphia and supporting suburban and agricultural territories.
- II. *Lehigh Valley*—Urban and industrial centers of Easton, Allentown, and Bethlehem and slate and cement towns; above median population density.
- III. *Piedmont and Lebanon Valley*—Urban centers of Reading, Lancaster, and York, combination market centers and industrial towns; rich general farming areas; early Pennsylvania German settlement.
- IV. *Anthracite*—Racial mixture of population in area of great industrial concentration about coal fields; country rugged, urban and rural non-farm population inhabits valleys; cities of Scranton and Wilkes-Barre; contains economic "Problem Areas."
- V. *Central Ridge and Cumberland Valley*—Harrisburg capital district and prosperous agricultural areas; most counties sparsely populated with small scattered agricultural trading centers.
- VI. *Northeast Dairy and Resort*—All counties low in population density; shares specialized dairy region with New York State on North; some industry but no manufacturing future.
- VII. *Susquehanna Valley and Appalachian Limestone*—Williamsport and other urban centers dot this region. Once great lumber center; strip of agricultural development; agricultural towns acquiring manufacturing; slice of "problem area" on North.
- VIII. *Southern Ridge and Bituminous*—With exception of territory adjacent to Johnstown (steel center) and Altoona (railroad center), region is sparsely populated. Specialized agriculture and part-time farming in industrial and coal areas.
- IX. *North Central Forest and Oil*—All counties below state median density of population; combination of state forest lands, oil lands, bituminous coal lands, industrial and manufacturing centers.
- X. *Southwestern Industrial*—Widespread bituminous coal mining and heavy urban industrial development skirting Pittsburgh proper; Northern section supports iron and steel industries; Southern districts exclusively agricultural, a merging of agriculture and industry.
- XI. *Northwestern Dairy and Oil*—Manufacturing and commercial city of Erie, oil producing and refining centers, widespread forests and agriculture; oil and agriculture merge in scattered urban communities.
- XII. *Pittsburgh and Ohio Valley*—Pittsburgh and adjacent municipalities with dominant industry of iron and steel and metal products.

tations are also the regions which have the greatest proportion of communities which have reached a stage of high degree of adaptation. This is the phenomenon of concentration noted in Chapter I.

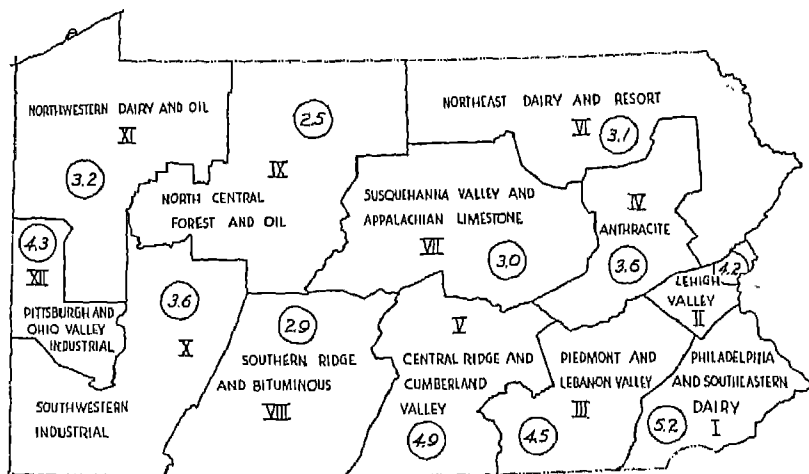


Figure 4. Average Number of Twelve Adaptations Made in Pennsylvania Districts, by Regions

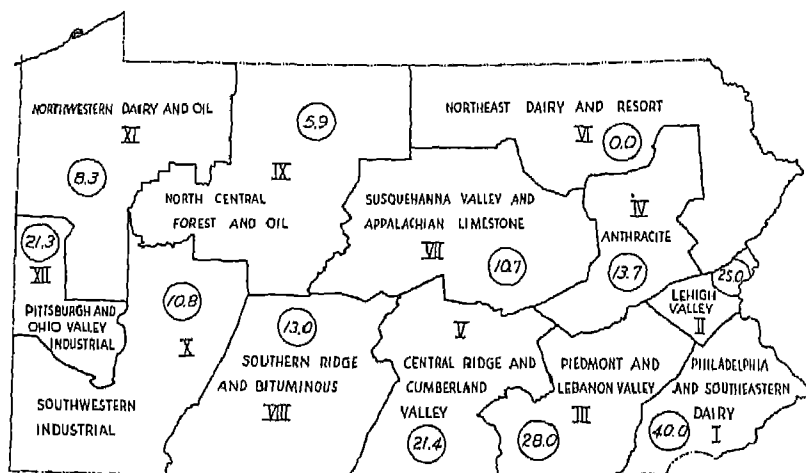


Figure 5. Per Cent of Districts in Twelve Regions with Seven or More of Twelve Adaptations

*Intra-Regional and Inter-Regional Variation in
Adaptability*

Differences in the extent to which the twelve adaptations as a whole have been introduced in various sections or regions of the State are shown in Figures 4 and 5. In the treatment of regional concentration of adaptability, two angles are to be considered: first, average status of communities as measured by the presence or the absence of the twelve specific adaptations taken together; and second, the diffusion or spread, over a period of years through Pennsylvania regions, of each of the nine specific adaptations considered in this report. The distinction between these two approaches must be borne in mind in reading the present chapter.

We shall now turn to a detailed examination of the extent of regional variation in adaptability, as shown by the average extent of diffusion of the twelve adaptations taken together. This is the first approach referred to above.

Care was exercised in interpreting the variations of the averages shown in Figure 4 so as to account adequately for the fact that in our study we have but a sample of districts. It is necessary, therefore, to allow for such variations in averages of the appearance of the twelve adaptations in the Pennsylvania regions as may be attributed to sampling or chance alone. We raise the question, Might not the true averages of all districts included in the study be very much the same? Details of the statistical treatment necessary in making this analysis appear in Supplement B.²

It was found that the average adaptability of regions, as measured by the average number of twelve adaptations reported in districts of each region, differed *significantly*.³ Some regions, it is to be

² Cf. Supplement B, pp. 438-445.

³ Numerous tests of statistical significance were made in the treatment of data reported in this volume. This was necessary by virtue of the fact that sampling was limited and allowances for chance or sampling variations were required. A summary of some of these tests appears in Supplement B. In an effort to avoid too frequent reference to statistical tests of significance, we have eliminated many statements of chi-square and analysis of variance from the body of the text. Where it was believed necessary, however, to consider sampling error, proper precautions were taken. For textual interpretation of statistical significance the terms *highly significant*, *statistically significant*, *marked but not significant*, and *inconclusive* will be used. (See page 58.)

noted, are made up, for the most part, of large places which, in the present analysis, may be thought of as those districts with more than the average number of classroom units. Other regions, more sparsely populated, contain high proportions of fourth-class districts and other districts with fewer than the average number of classroom units.

Various analyses were made to find the extent to which variation in adaptability is explained by this size-classification. With careful controls over possible sampling error, it was found that much variation in the adaptability of districts was attributable to the size breakdown. The large district, on the average, is more adaptable than the small district. To be sure that the *significant* variation of averages, as shown in Figure 4, was not clouded by the fact that some regions contain more large districts which are relatively more adaptable, analyses were made which removed the influence of variation because of the size-classification. The process was essentially that of comparing averages of the large type of district among regions and averages of the small type of district among regions separately. The results of this analysis revealed that adequate allowance for differences in the proportion of the large districts within regions still yields *statistically significant* interregional variation.⁴ The Philadelphia and Pittsburgh regions are considerably above expectancy for both large and small districts. Region IX,

-
- (1) *Highly significant*—Could have been an accident of sampling or chance in fewer than one such sampling in 100.
 - (2) *Statistically significant*—Could have occurred because of sampling by a probability of only one in 20 to one in 100.
 - (3) *Marked but not significant*—From one chance in 4 to one in 20 likelihood that observed statistic was accidental.
 - (4) *Inconclusive*—Degree of uncertainty ranging from even chance to one in 4.

Observations classified by terms (1) and (2) may be taken for established fact with reference to the types of school systems covered in this study. The third definition applies to observations which may be taken as strong hypotheses subject to further study. The term *inconclusive* indicates that the hypothesis tested is not supported by our study. However, it should be held in mind that this gives no basis for inferring that those classed as *inconclusive* might not under more extensive sampling and more thorough control show up more markedly.

⁴ It should be pointed out here that variation within regions is much greater than variation among the averages of regions. Some light on the nature of the difference appears in the following sections.

the North Central Forest and Oil Region, is below expectancy in both large and small districts.

It appears, therefore, that adaptations have diffused with concentration in certain regions out of proportion to the greater number of districts, large or small, in these regions. For the most part these may be characterized as the most urban and most highly developed industrial and commercial regions of the State.

Regional Distribution of Each of the Nine Specific Adaptations

From the questionnaires it was possible to distribute the concentration of the nine adaptations in the twelve regions for various periods. Copies were made of a map of the State marked off into our twelve regions and showing the location of the 344 districts superimposed upon a population distribution. Circles representing communities in our sample were then blocked in to indicate the presence of the adaptation for various periods. Accompanying each map, which showed the status of diffusion of an adaptation at a particular date, was a statistical table of the frequencies of adaptations in the various regions at that time. A study of these maps and the statistical data made possible an analysis of the development of the adaptations in terms of tendencies toward regional concentration. In the following pages maps are presented and observations are made concerning the patterning of diffusion by regions.

REGIONS AND THE KINDERGARTEN

The earliest districts in Pennsylvania to introduce public kindergartens were the two large cities of Philadelphia (1887) and Pittsburgh (1893). The third district in our sample to introduce the kindergarten was a residential suburb of Philadelphia. The status of kindergarten diffusion by 1903 is represented in Figure 6. It is to be observed that aside from the city of Erie in the Northwestern Region, kindergartens had by this time appeared only in urban regions, the Philadelphia Region, the Anthracite Region, and the Pittsburgh Region.

By 1917 other regions had come into the picture, but here again,

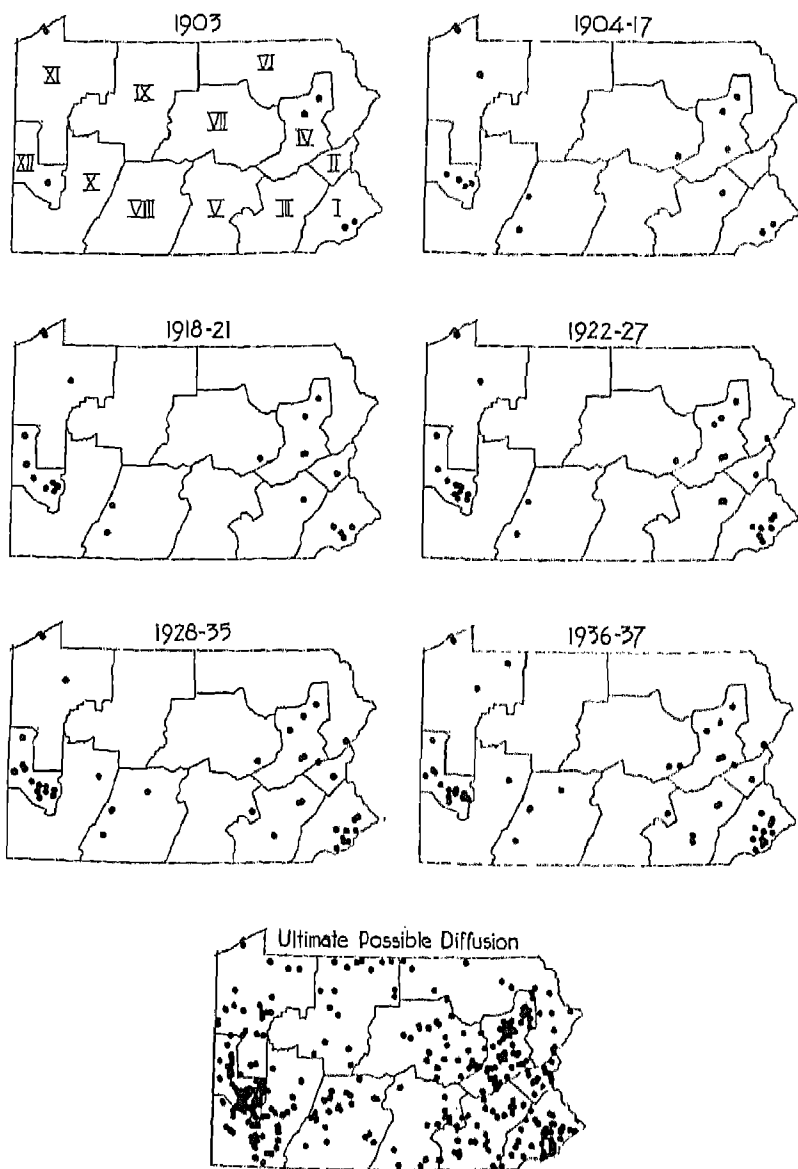


Figure 6. Diffusion of KINDERGARTEN Adaptation

for the most part, adaptation in these other regions took place in large cities. As the kindergarten movement progressed through the State we find by 1921 and 1927 a rather noticeable concentration of kindergartens in the three most urban regions (Numbers I, IV, and XII). Occasional kindergartens appeared in other regions, but most frequently in urban communities.

An examination of the maps, in Figure 6, shows that diffusion appears to be outward from the Philadelphia and Pittsburgh centers and later from the Anthracite Region, first in larger and later in smaller places. Even in 1937 kindergartens were concentrated in eastern and western regions, with few in the central part of the State.

A test was made to determine the significance of difference in the spread of kindergartens among regions of Pennsylvania.⁵ For purposes of this analysis, the two periods—from the beginning of the adaptation to 1921, and from 1922 to 1937 inclusive—were selected. The objective was to determine, if possible, the extent to which concentration in these three urban regions was due simply to (a) the greater number of communities in these rather densely settled regions, and (b) the fact that they also contained a greater proportion of the larger or urban districts. It was found that these three regions combined produced 15 of the introductions appearing prior to 1921 and 17 of the introductions appearing since 1921, a total of 32 of the total 49 kindergartens recorded in our large sampling of 344. If kindergartens had been distributed in direct proportion to the number of districts in these regions, there would have been in the two periods but 10 by 1921 and 12 since 1921 in these three regions.

It may be observed that prior to 1921 the three urban regions (Numbers I, IV, and XII) had five more introductions of kindergartens than their quota of 10. In the period from 1922 to 1937 their quota of 12 was also exceeded by five. This indicates a *highly significant* degree of concentration of kindergartens in these regions. In other words, *the hypothesis holds that these regions have produced kindergartens out of proportion to the number of districts contained in them.* On the other hand, a comparison of observed

⁵ Cf. Supplement B, pp. 446-447.

kindergarten introductions and expected kindergarten introductions on the basis of proportional distribution throughout the State among large places only (those over 55 classroom units) produces *only a marked but not significant* distribution favoring these three regions. That is to say, the diffusion of kindergartens follows urban communities more closely than all communities combined.

The inference to be drawn from this analysis is that the clustering of the growth of kindergartens in these three regions is in part attributable to the fact that they contain large numbers of urban places. We may add to this inference the point that there are two aspects involved in this phenomenon: (1) geographical clustering of the growth of the kindergarten and (2) the tendency for kindergartens to diffuse through urban centers or large school systems more commonly than in smaller school systems. Kindergartens, like physical education, industrial arts, and other innovations which require special rooms and teachers, can be expected to occur first and relatively more frequently in larger school systems which can more easily furnish the special rooms, special equipment, and specially trained personnel necessary for these adaptations.

REGIONS AND REORGANIZED HIGH SCHOOLS

Though it appears in Figure 7 that the reorganized high school clustered in the eastern part of the State and the western part of the State in the very earliest periods up to the year 1921, the diffusion of this adaptation is noticeably random. No pattern of concentration appears in 1915 in the distribution of the four communities of our small sample which, at that time, reported reorganizations. The rapidity with which tendencies toward regional concentration were lost during the spread of this adaptation is apparent as one examines Figure 7 for the year 1925. By 1925 high schools had been reorganized in all but one of the regions. By this time there had been a slightly higher frequency of introduction of this adaptation in Region I and in Region VI than might be expected had the introduction been entirely random and in direct proportion to school districts. Interestingly enough, Region XI, which is slightly above expectation up to 1925, loses its lead in the following period, and in succeeding periods introduces fewer reorganizations

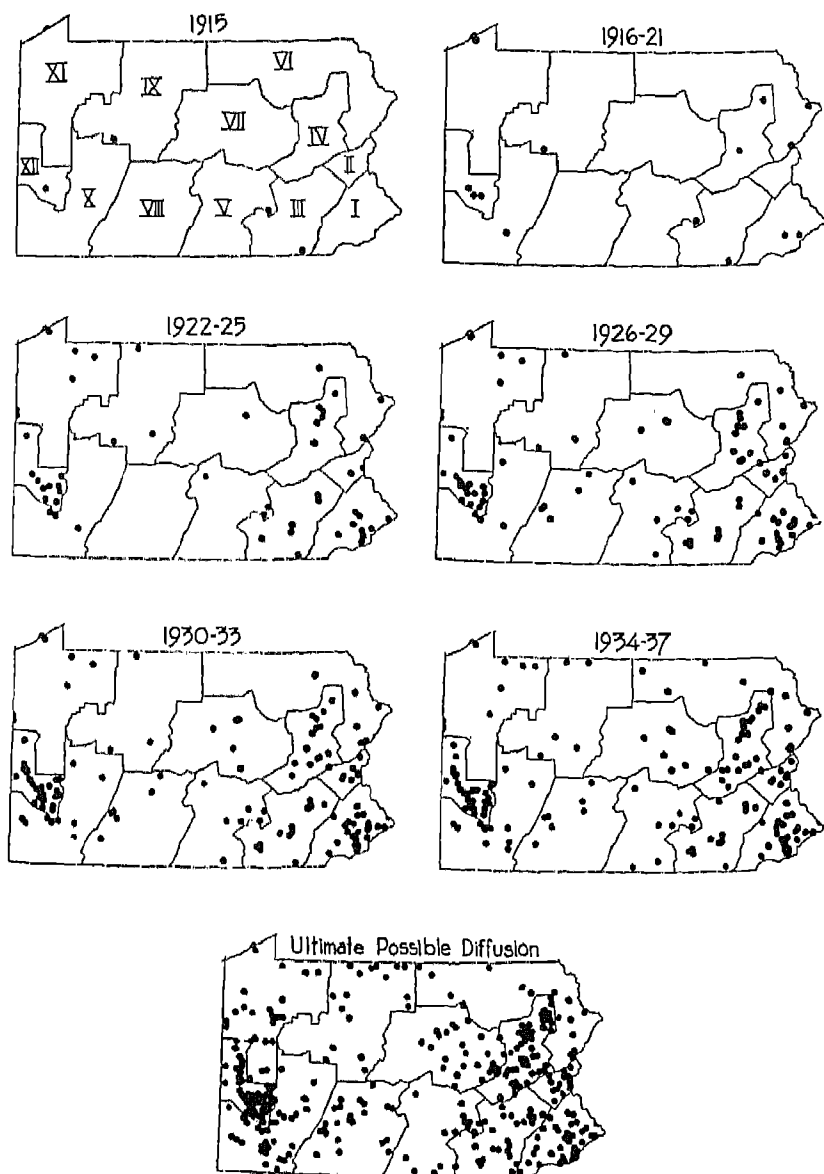


Figure 7. Diffusion of REORGANIZED HIGH SCHOOLS Adaptation

than might be expected of it. Only two of its reorganizations have been made since 1925.

Present status is represented in Figure 7 for the year 1937. There are apparent concentrations in Region I and in Region XII. The concentration in Region VI is not quite so apparent, but it is to be observed that only five of our sample of districts in the North-east Region have not made the change.

As before, we now ask the question, How significantly do reorganized high schools tend to concentrate in particular regions? From observation of Figure 7 it appears that this adaptation has taken an exceedingly random course in its diffusion throughout the State. From the large sample, an analysis was made of the regional patterns of spread of reorganized high schools in the period 1925 and earlier, and 1926 to date.⁶ The distribution of reorganized high schools was compared with a gun-shot distribution proportional to *all districts* and a gun-shot distribution proportional to *urban districts only*. It was found that the distribution of reorganized high schools corresponded with the geographical distribution of *all districts* better than with that of urban districts only. A tendency was shown for this adaptation to be significantly not an urban phenomenon in both periods, but even less urban in the years since 1926. In recent years the communities reorganizing their high schools have included more small ones.⁷

REGIONS AND SPECIAL CLASSES

The geographical distribution of the adaptation—special classes—in different periods of its growth appears in Figure 8. One cannot say that there was regional concentration in the early periods, although the first class in our sample was in Philadelphia in 1901, followed by a class in Reading in 1907 and a class in Lancaster in 1912. The other two classes appearing in Figure 8 for the year 1915 are in the large cities of Scranton and Johnstown.

Aside from the possible leadership of the large city of Philadelphia, the introductory period of the growth of special classes appears not to be characterized by regional concentration. The com-

⁶ Cf. Supplement B, Note 4, pp. 447-448.

⁷ See pp. 126 to 131 of this report.

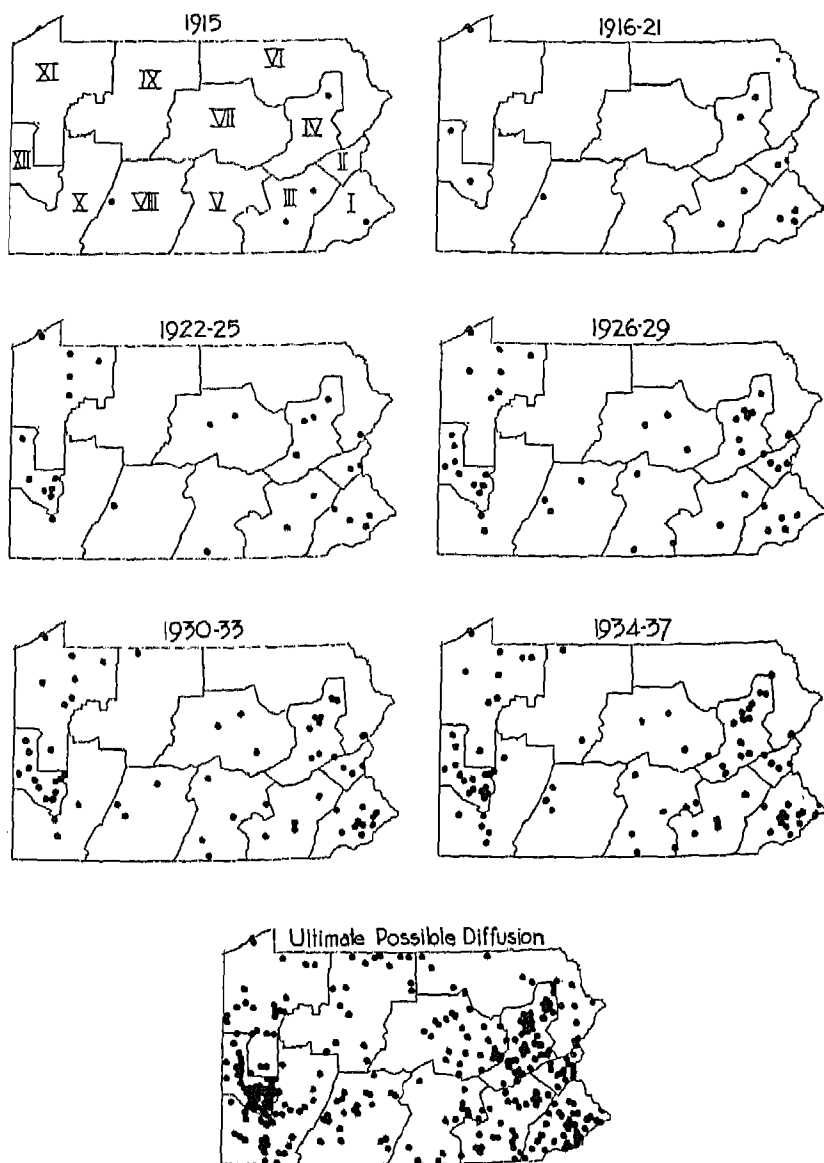


Figure 8. Diffusion of SPECIAL CLASSES Adaptation

mon element of communities taking on this change appears to be urbanness rather than geographical propinquity. Notice, however, that if something in the way of leadership existed in the example set by Philadelphia, this would satisfy the observation that although regional lines were crossed, the next two cities to make the change were near Philadelphia. The third city, Scranton, was also in the eastern part of the State. Additional special classes, from 1915 to 1929, appear with one exception in large cities, including Erie, New Castle, Pittsburgh, Allentown, Wilkes-Barre, and Easton. Up to 1929, therefore, this adaptation has been an urban one, and to a very great extent the evident fertility of the urban center for this change has induced its growth to a far greater extent than influences of contiguity. From 1921 on, as greater numbers of districts introduced special classes in Pennsylvania, the distribution of these classes became noticeably widespread.

Statistical analysis was made of the distribution of special classes against a random or gun-shot distribution for two periods, (1) covering diffusion up to 1925, and (2) covering the entire period to 1937.⁸ It was found that in the earlier period the variation between the actual distribution of special classes among the various regions and a random distribution was slight. For all diffusion up to the present period, *marked but not significant* variation between actual regional distribution and random regional distribution was observed. As a whole, therefore, it may be said that the introduction of special classes has tended toward increasing regional concentration.

Although the patterning cannot be said to be significantly regional, it is to be observed that the status as of 1937 tends more toward regionalness than was formerly the case. The one region varying most from expectancy was Region XI, in which two communities of our small sample are located. The field visits failed to reveal any explanation for the greater responsiveness of communities in this region to the need for special classes.

REGIONS AND HOME MAKING FOR BOYS

The confusion resulting from observing concentrations of cases in areas varying in density of population and number of school dis-

⁸ Cf. Supplement B, Note 5, pp. 448-449.

tricts is illustrated in Figure 9, which shows the distribution of homemaking classes for boys. This figure for the years 1934-35 and 1936-37 suggests an evident concentration around the Pittsburgh area. However, there are so many districts within the Pittsburgh area that there would need to be several black dots indicating introductions of homemaking classes in order for this region to have only its share of a proportional distribution. There is no real concentration of homemaking classes in this area in terms of an expected proportional distribution. By 1937 there were nine cases of homemaking for boys' classes in Region XII, a greater number than for any other region; but proportionally we would expect approximately nine cases in this region with its high proportion of the State's districts.

A genuine concentration does exist in Region V. There are fewer districts in this region, but a greater proportion of them have made the homemaking for boys adaptation. There is a genuine concentration in Regions I and III, part of which may be noticed by examining Figure 9. Region IV, the Anthracite Region, is noticeably lower than expectation in terms of proportional distribution. Region X is also somewhat low.

Since so few communities of the large sample have introduced the homemaking for boys adaptation, and since in most of these the adaptation has appeared comparatively recently, it was decided not to differentiate between early and late communities from the standpoint of regional distribution. Tests of the regional distribution of introduction of homemaking classes for boys against random distribution indicate a *highly significant* degree of regional concentration of this adaptation.⁹

The only apparent explanation of the high incidence of this adaptation in Regions III and V is the influence of the State Department of Public Instruction, which is located in Region V and has influence on Region III because of propinquity. This tendency was revealed by the field studies. This differential influence of the Department on near-by communities was not noted in the other adaptations.

⁹ Cf. Supplement B, Note 6, pp. 449-450.

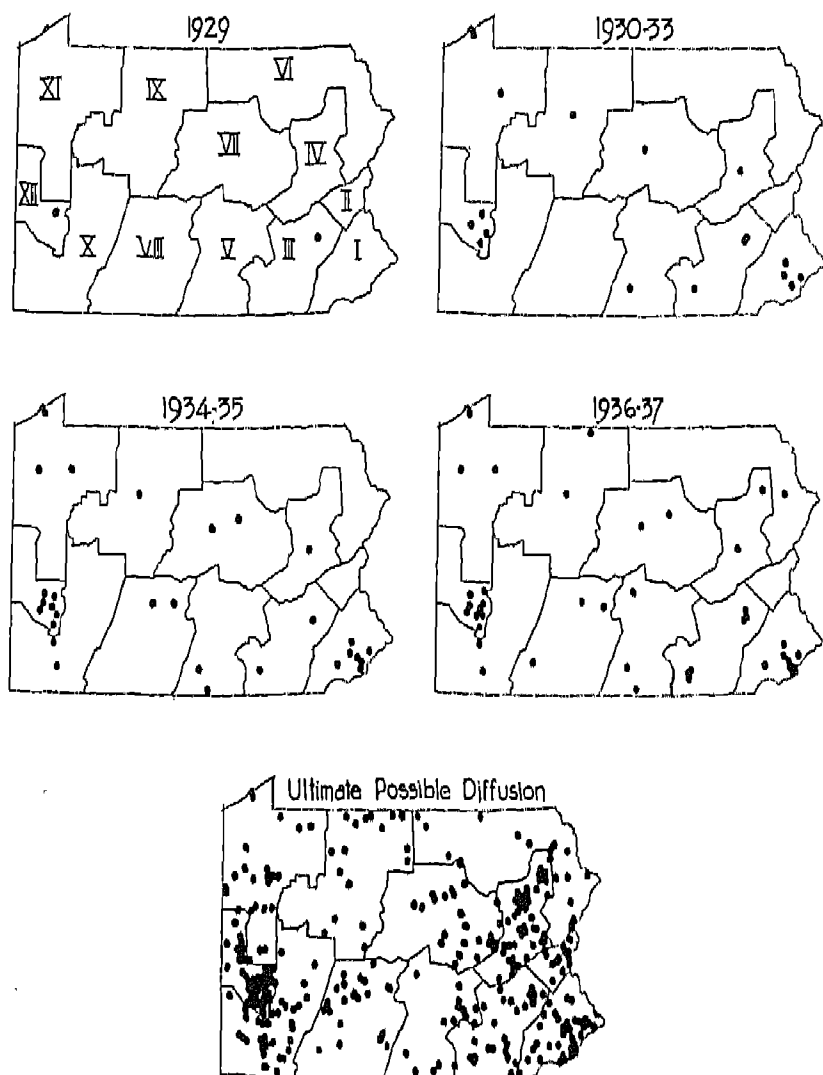


Figure 9. Diffusion of HOMEMAKING FOR BOYS Adaptation

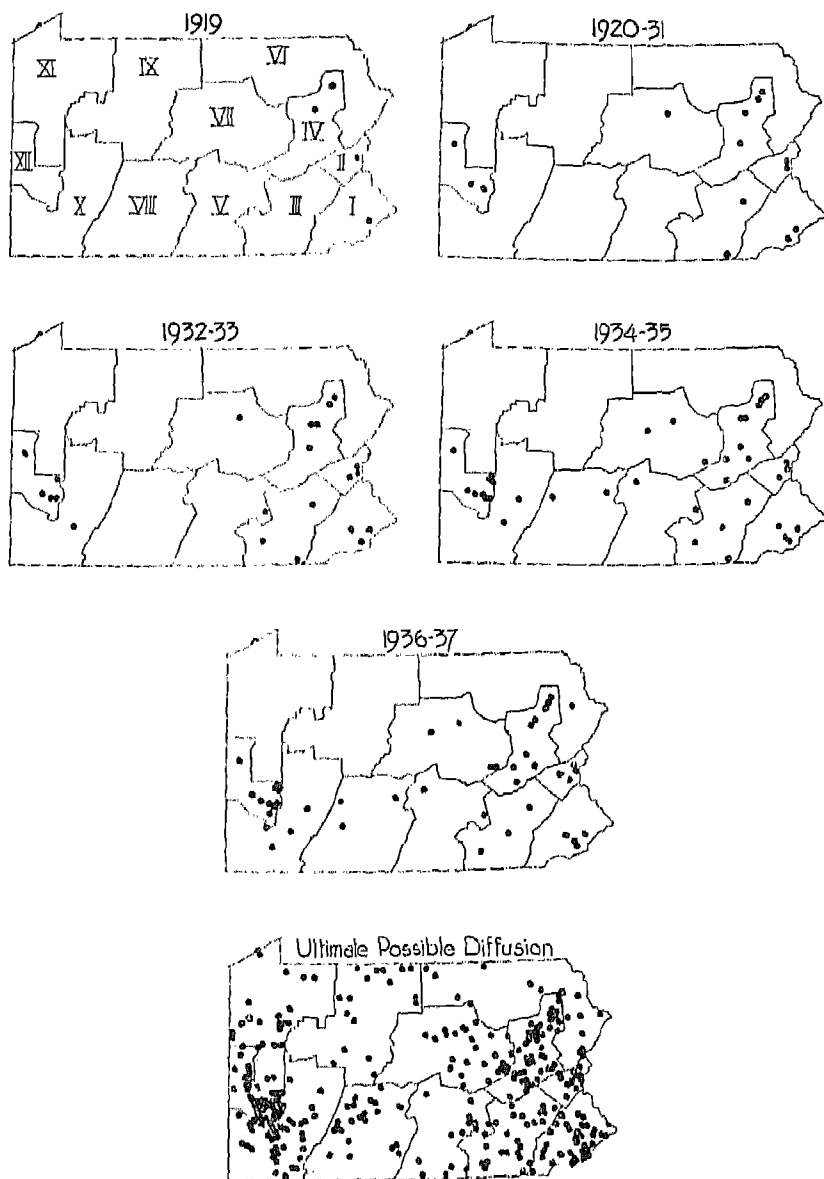


Figure 10. Diffusion of ADULT EDUCATION Adaptation

REGIONS AND ADULT LEISURE CLASSES

In early introductions of adult leisure classes large-city leadership is apparent. Philadelphia, as with many other adaptations of two or three decades ago, was in the lead. This may explain the fact, as shown in Figure 10 for 1919, that early adaptations appeared only in the eastern part of the State. The next period during which there was much change in the introduction of adult leisure classes brings us to 1931. By this time the eastern zone of activity had expanded, and communities appear in the Pittsburgh Region, including Pittsburgh itself, which had made this change. By 1935 the vast sparsely populated central territory of the State had taken on new services for adults. But as a whole it cannot be said that with this adaptation there are regional concentrations appearing to a greater degree than chance fluctuation would produce. The hypothesis of regional concentration of this adaptation appears to be inconclusive.¹⁰

REGIONS AND THE EXTRACURRICULAR PROGRAM OF HIGH SCHOOLS

Although a new emphasis had been placed on extracurricular activities in Pittsburgh as early as 1915, and in Philadelphia in 1917, our earliest observation shows no evident geographical concentration of this adaptation (see Figure 11 for 1919). This lack of geographical concentration of this adaptation progresses with time, as Figure 11 shows. Aside from the leadership in the two first-class cities of Pennsylvania, no particular section of the State can be said to have had a monopoly on districts attempting to develop more useful extracurricular activities in secondary schools.

The distribution of the extracurricular activity adaptation was subjected to tests of regional concentration for the three periods: through 1925, 1926-30, and 1931-37, by regions. For each of the three periods, the extent of regional concentration was found to be inconclusive.¹¹

REGIONS AND BASES OF PROMOTION IN THE ELEMENTARY SCHOOL

On the surface, there is no regional patterning of changes in bases of promoting school children in the elementary school as evidenced

¹⁰ Cf. Supplement B, Note 7, p. 450.

¹¹ Cf. Supplement B, Note 8, p. 450.

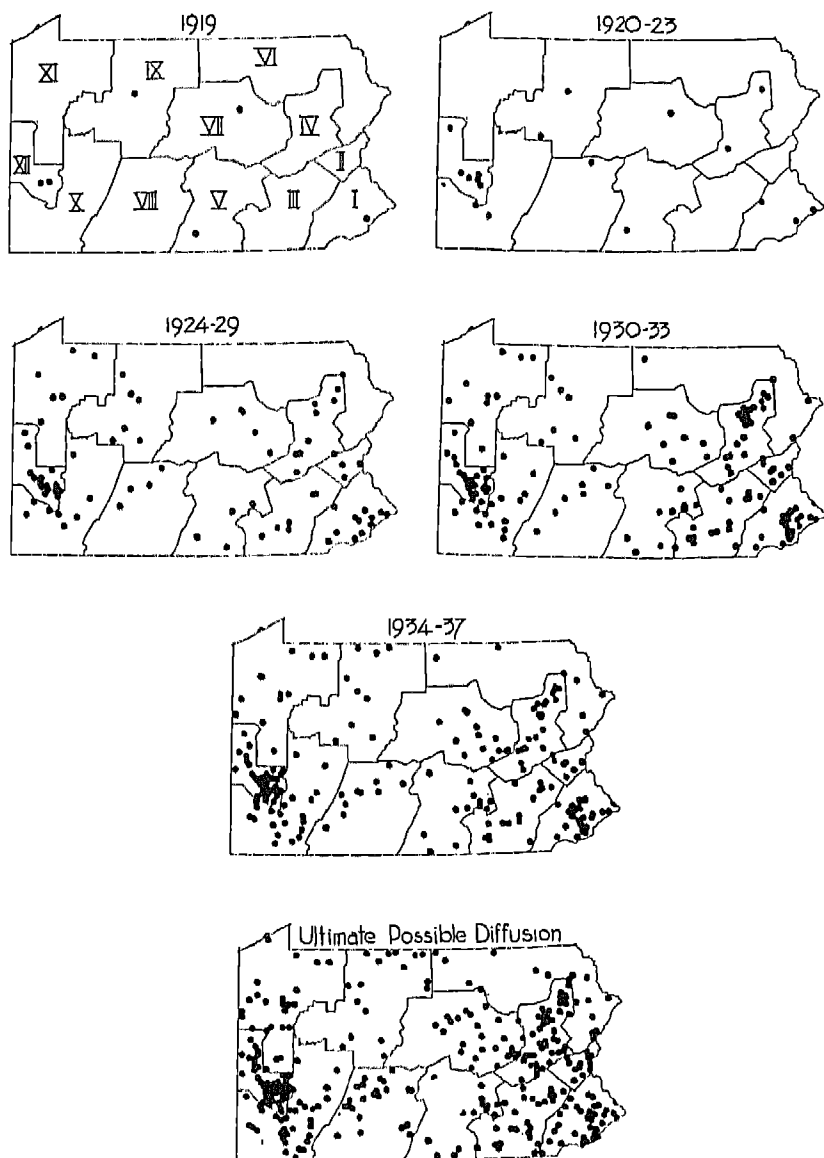


Figure 11. Diffusion of EXTRACURRICULAR ACTIVITIES Adaptation

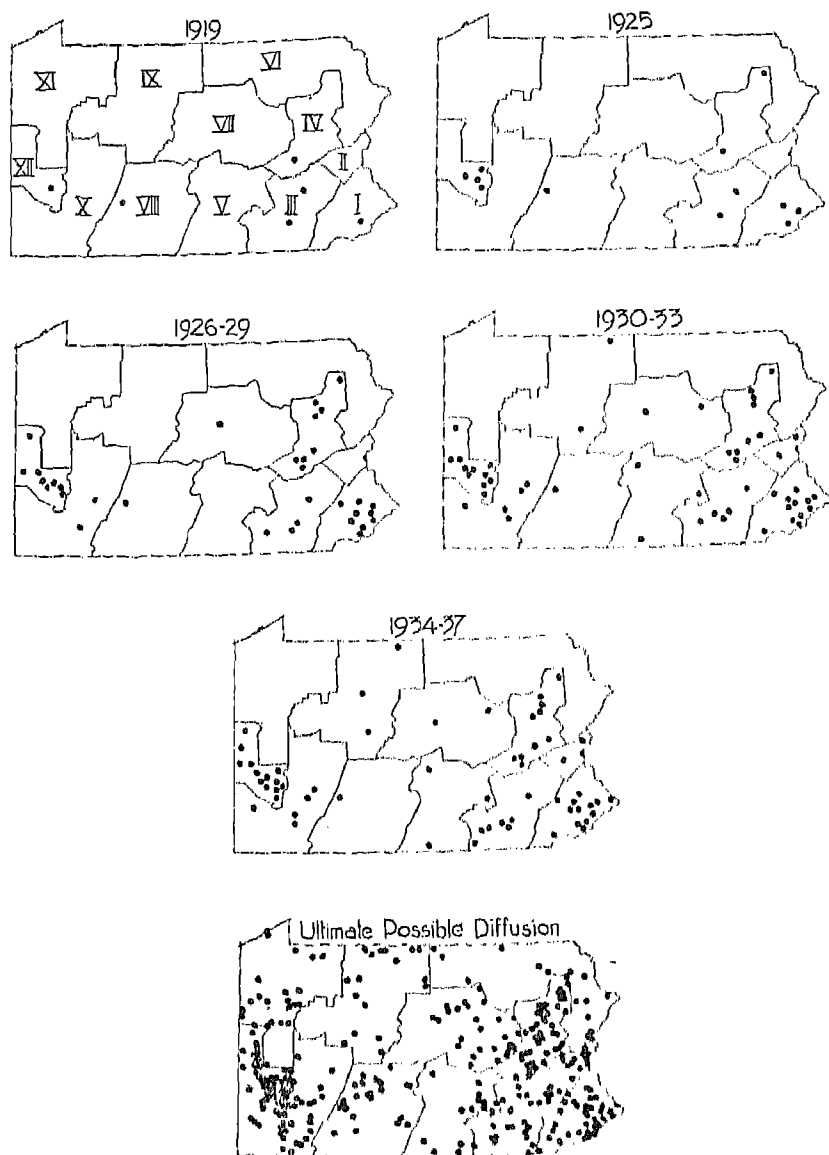


Figure 12. Diffusion of the ELIMINATION OF ELEMENTARY FINAL EXAMINATIONS Adaptation

by the elimination of elementary school final examinations. Figure 12 shows, however, that, as with other adaptations, change tends to take place first in the eastern and western urban sections of the State. The urban characteristic of this adaptation had not begun to disappear before the latter part of the 20's (see Figure 12 for 1929). From an examination of Figure 12 regional patterning is not otherwise highly apparent. However, a statistical treatment of geographical variations in the distribution of this adaptation provides information supplementing what may be observed by casually examining this series of maps.

Noticeable differences appear in the proportion of communities in the twelve regions which have made the elementary final examination adaptation. While statistical tests of regional concentration for the period of diffusion up to and including 1929 are inconclusive, some regions vary considerably from expectancy.¹² Region XI, for example, is unusually low, none of its districts reporting this adaptation during the period up to and including 1929. Region III for this period is considerably under expectancy, as is Region I.

Statistical tests further indicate that urbanness does not influence the tendencies toward regional concentration of this adaptation. Since 1929 the regional patterning has been highly significant.

The significant regional concentration of this adaptation since 1929 is due, in large part, to the greater degree of adaptation in Regions I, III, and V, most noticeably in the Philadelphia metropolitan area. In this particular area, Region I, the concentration appears to be increasing. Prior to 1929 none of the regions shows marked concentration. Colonization* tended to be widely scattered throughout the State.

REGIONS AND INTEGRATED CURRICULA IN THE HIGH SCHOOLS

Only three communities reported this adaptation. It is of interest to note that two of them are in Region I and the other in Region X. Although the force of number, that is to say, the extent of sampling in this observation is small, the regional distribution in

¹² Cf. Supplement B, Note 9, p. 451.

* The term colonization is used to refer to the spreading of an adaptation to an area of the state in which it has not previously appeared.

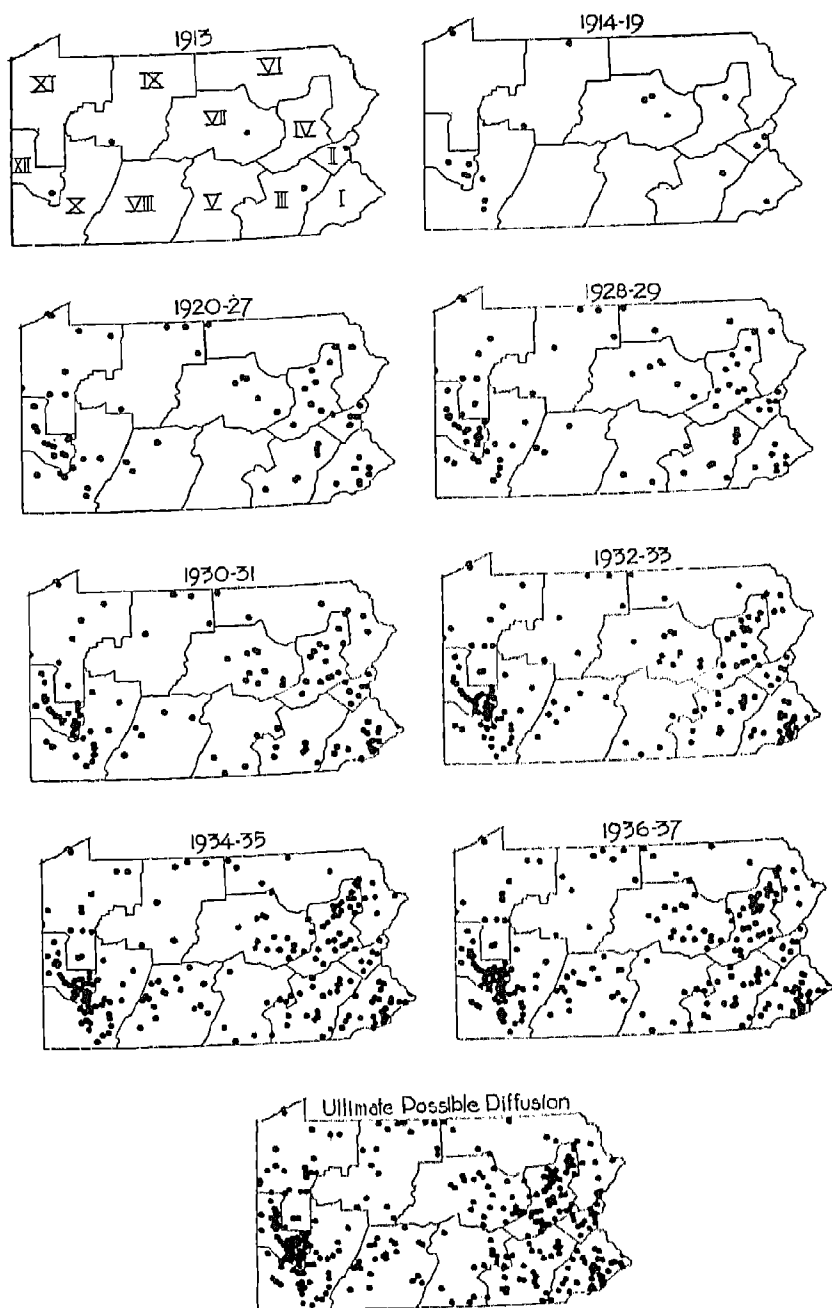


Figure 13. Diffusion of the SUPPLEMENTARY READING Adaptation

part tends to follow what one would expect in terms of the educational level of programs in the various regions. Perhaps a more extended sampling would reveal regional characteristics here. As a matter of fact, since communities operating on a high level of adaptation, as measured by our adaptability manual, would of necessity be making some progress in this area, the hypothesis of regionalness in this adaptation might be tested by a high concentration of adaptability as a whole in regions. We know from field study that there is a concentration of high-level communities in Region I, other such communities in the State being widely distributed.¹³

Communities making this particular adaptation are too few for a statistical analysis or for the construction of a map showing their distribution. The high probability of our hunch that communities now preparing to make changes in this area are for the most part communities in the Philadelphia metropolitan and suburban areas and in the Pittsburgh metropolitan and suburban areas is, however, of some significance. The reader may recall that many innovations in the past have emerged in these same metropolitan centers.

REGIONS AND EXTENSIVE READING IN THE ELEMENTARY SCHOOL

As shown elsewhere in this report, the question of the provision of opportunities for elementary school children to have extensive reading materials is a matter closely associated with the question of cost. This adaptation has taken the course significantly associated with the financial resources of the communities involved. It has been noticed in field studies that communities on a relatively high economic level, or communities that are in a position to spend adequate sums for education, almost inevitably are communities in which children have opportunities to read extensively, whatever else the local school system does educationally. If this is so, it is not surprising to find the supplementary reading adaptation diffusing in a way not representing a distinct regional pattern.

Perhaps the basic educational objective of all time has been overcoming illiteracy. The most conspicuous next thing to do when a community finds itself in a position financially to expand its pro-

¹³ Cf. Figure 5, p. 56.

gram is to make available to youngsters more and better reading materials. This has happened in all types of districts, and in all parts of Pennsylvania and for that matter of the United States.

Perhaps this is a type of adaptation which, once carried to some high level of development and organization, needs no stimulus of precedent of a neighboring community. Parents and school people have known that it is desirable and worth while to provide children with good books. Perhaps this is an explanation of the nature of the geographical spread of the supplementary reading adaptation shown in Figure 13. At least in the most recent stages of development of this adaptation the spread throughout the State seems very thorough. Since, however, the extent to which it has penetrated all parts of the State might result from the fact that it has diffused to a greater number of districts than other adaptations, it seemed necessary to check our examination of Figure 13 by means of statistical analysis.

Analysis of regional patterning in the extensive reading adaptation was split into two time periods of diffusion: (1) up to 1929 and (2) since 1929. For both periods the distribution of this adaptation among regions was distinctly random. The tests of regional concentration were highly inconclusive.¹⁴ It was found further that this adaptation did not follow an urban pattern.

Regional Differences in Community Leadership

It is clear from the foregoing that certain regions appear as pioneers again and again, while others are characteristically laggard. Table 10 brings out this point by showing when in the course of the various diffusion histories of eight adaptations each region first introduced them. This was determined by inspection of the maps showing the various stages of diffusion of each adaptation. It will be noted that Region XII, the Pittsburgh Region, made six of the eight introductions during the first period and the other two during the second period. Region I, the Philadelphia Region, stands second, with five and three respectively. Regions III and IV could be rated as early followers. Regions VII, X, XI, VIII, II, and IX are late followers, and Regions V and VI are laggards.

¹⁴ Cf. Supplement B, Note 10, p. 451.

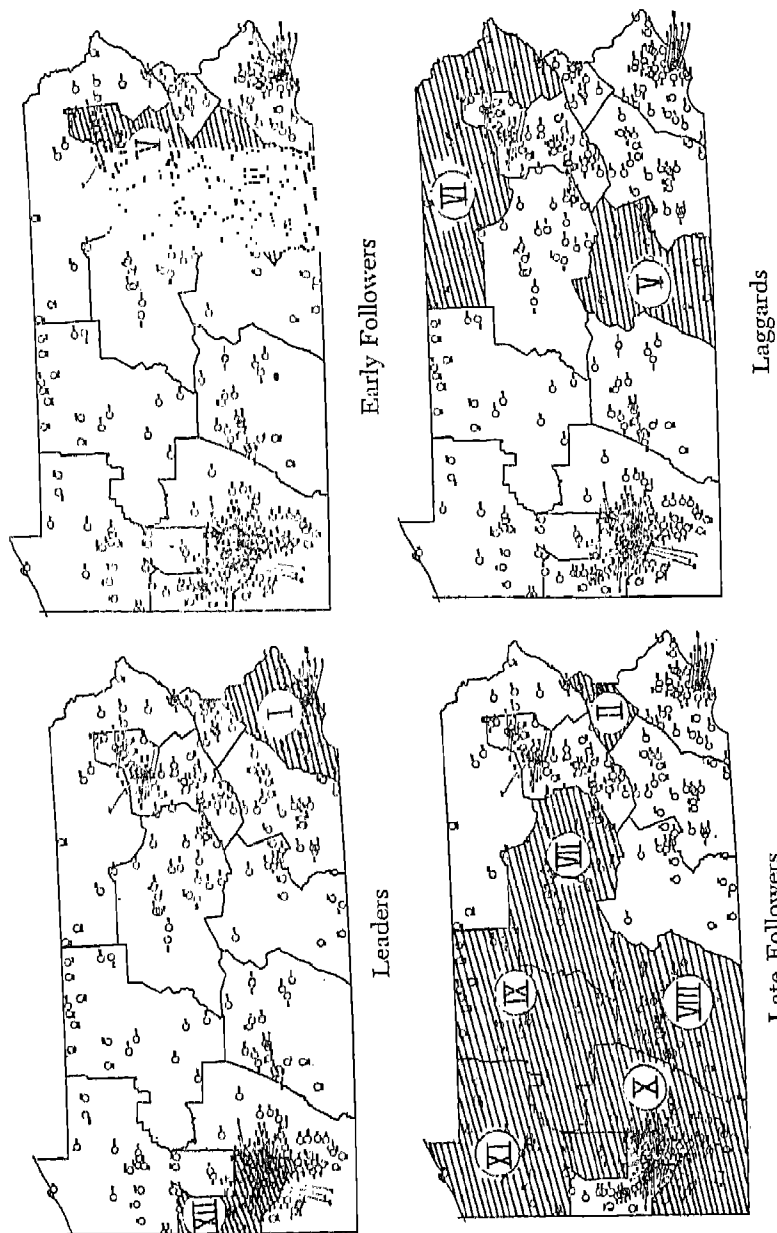


Figure 14. Relative Time of First Introductions of Eight Adaptations, by Regions

The location of these four groups of regions is shown in Figure 14. Note how late the regions around Pittsburgh follow the Pittsburgh region's early lead. Note the slowness of the region in which the state capital lies (Region V) and also of the Northeast Dairy Region.

TABLE 10

Number of Eight Adaptations Making First Appearance in the Several Pennsylvania Regions at Various Stages^a of Diffusion

REGION	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	NONE
XII	6	2					
I	5	3					
III	5	2	1				
IV	4	4					
VII	2	2	3				
X		5	3				
XI	1	4	1				2 ^a
VIII	2	2	3	1			
II	2	2	3				1 ^b
IX	3	1	1		1		2 ^a
V	2	1	2	2			1 ^d
VI		1	2	3		1	1 ^f

^a Stages as shown in Figures 6 to 13.

^b Homemaking for boys.

^c Kindergartens and adult education.

^d Kindergartens.

^e Adult education and extracurricular activities.

^f Elimination of elementary final examinations.

The four leading regions are notably diverse in economic life. They may be briefly described as follows:

Region XII—Pittsburgh and adjacent municipalities, with dominant industry of iron and steel and metal products.

Region I—Densely populated urban and industrial area of metropolitan Philadelphia and supporting suburban and agricultural territories.

Region III—Urban centers of Reading, Lancaster, and York, combination market centers and industrial towns; rich general farming area; early Pennsylvania German settlement.

Region IV—Racial mixture of population in area of great in-

dustrial concentration about coal fields; country rugged; urban and rural non-farm people inhabit the valleys; cities of Scranton and Wilkes-Barre; contains economic problem areas.

The two laggard regions are characterized as follows:

Region V—Harrisburg capital district and prosperous agricultural area; most counties sparsely settled with small scattered trading centers.

Region VI—All counties low in population density; shares specialized dairy region with New York State on north; some industry but little manufacturing.

Clustering of Adaptations

From inspection of Figures 6 through 13 it is obvious that there are two distinctly different patterns of diffusion. The kindergarten diffusion (Figure 6) is most characteristic of the one pattern; extracurricular activities (Figure 11), of the other. As we see them in the first stage (kindergartens in 1903, extracurricular activities in 1919) we have a half-dozen scattered districts, kindergartens in four sections of the State, extracurricular activities in five. When they have reached the fourth stage, kindergartens (1922-27) are still clustered, while extracurricular activities (1930-33) are widely scattered. Furthermore, the wide dispersion, showing up slightly in extracurricular activities in the first stage, becomes marked in the second and third stage, so it cannot be explained by the greater diffusion of the extracurricular activities. In both we see widespread diffusion and clustering, but in extracurricular activities widespread diffusion is more marked throughout and growth out from the colonies does not appear marked.

Examining all the maps we see the growth by clusters, with slow widespread diffusion appearing in:

- Kindergartens
- Special classes
- Adult education
- Elimination of elementary final examinations

and growth without widespread diffusion and with less tendency to cluster appearing in:

Extracurricular activities
Homemaking for boys
Reorganized high schools
Supplementary reading

In the first group we have three adaptations that are marked additions to the educational program affecting new groups and, in special classes, a small sampling of the old. The fourth adaptation represents a marked change in educational philosophy.

In the second group we have only one, reorganized high schools, that involves any great expenditure of funds (for buildings). It provided a means of reorganizing building programs in a time of expansion of the school population. It was also the subject of intense activity on the part of the State Department of Public Instruction. The other three do not represent any such departures in policy as any one of the first group.

These results suggest that where a marked change in school policy is involved, individual communities far removed from others interested in the change hesitate to move forward on their own. They need the encouragement of concurrent action by neighbors. This is borne out by the fact that isolated kindergartens suffered more in the depression than those in community clusters. Of forty-eight school districts surveyed in field work, sixteen once conducted or are now conducting kindergartens. Six of these have discontinued kindergartens which once were operating. The earliest district to discontinue its kindergarten was a second-class district of relatively low economic ability; it eliminated its kindergartens in 1906 after only three years of operation. At that time there were, and there still are, no kindergartens in the county and surrounding territory in which the particular city is located. This supports the observations made above of regional concentrations of adaptations and their clustering about large cities and areas in which a relatively high degree of diffusion has taken place.

Of the districts visited in our field studies, the second to abandon the kindergarten program was an isolated third-class district, a rural trading center in the northeastern part of the state. At the time of discontinuing this service in 1925, and since, it too has not had the

example of kindergartens in other districts in the same county or in contiguous territory. Two second-class districts abandoned kindergartens in 1932 and in 1934 respectively, for financial reasons. One was located in a county with only one other district with kindergartens, and the other was located in a county with no other district with kindergartens. Similarly, two third-class districts abandoning kindergartens were located in counties in which there were very few, if any, kindergartens except in large cities. Of the ten school districts in which kindergartens survived, nine were located in counties in which there were a number of other districts providing the service. The tenth district was one particularly favored by the financial support of a local philanthropist.

Evidently an isolated kindergarten is a vulnerable target for economy groups.

Summary

This chapter has shown conclusively that some parts of a state are more receptive to adaptation than other parts. Viewing the status of a large sample of communities in terms of the number of twelve selected adaptations which have been made, it was shown that some regions or areas of the state of Pennsylvania possess qualities contributing to adaptability which other areas possess in less degree. When the history of the spread or diffusion of the nine adaptations charted individually is subjected to scrutiny, we find that the clustering of adaptations in particular regions persists with such innovations as the kindergarten, the special class, homemaking for boys, and elementary school promotion. For many of the adaptations studied the first communities introducing them were large metropolitan centers, or communities lying in highly urbanized regions.

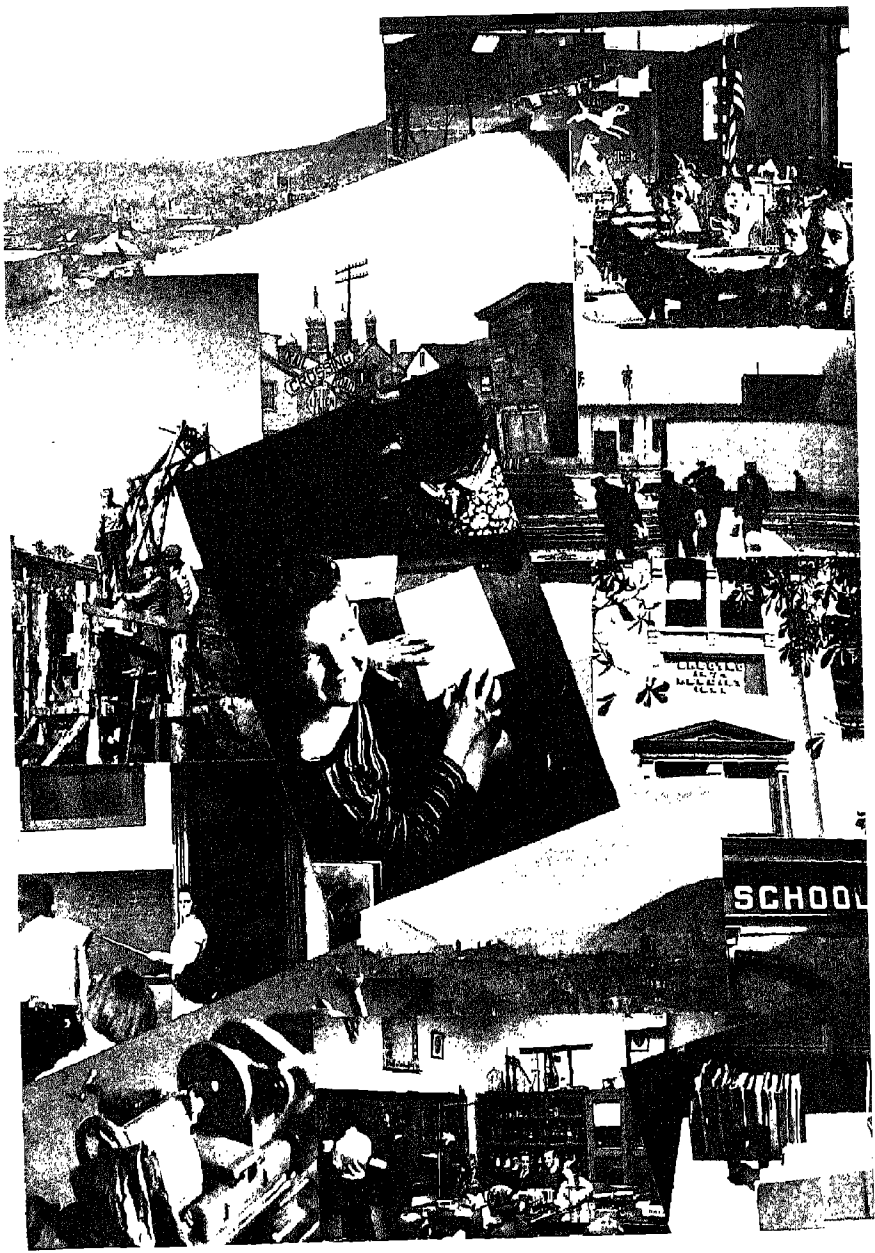
What causes regions to lag disproportionately is not clear from the data presented in this chapter. There may be many factors operating to produce much greater adaptability in some regions than in others. In the above analysis the effects of greater proportions, in some regions, of large or urban communities, which are known to be more favorable to adaptability, have been given proper allowance.

In some cases regional concentration appears much more marked or almost exclusively in earlier periods. This was found to be true

in the case of adult leisure classes, reorganized high schools, and elementary reading.

Adaptations that represent marked change in policy (extending the scope of the program, or involving a marked change in philosophy) seem to spread in clusters. Adaptations less marked in their character disperse more freely and cluster but slightly. With such adaptations, support seems less dependent upon the practice of neighboring communities.

There are indications that adaptations of the clustering type tend to be discontinued in hard times in isolated communities that have taken them on. They seem to need the *protection of clustering*.



EDUCATION IN THE INDUSTRIAL COMMUNITY

Life in the industrial community is centered about the task of earning a living. Schools in such communities lack professional leadership and the advantages of experimentally-minded teachers who draw upon sources outside the community for ideas. The adaptability of schools is less only in the poorer and smaller rural-farm communities. Social and economic conditions in such communities do not stimulate good public education.

PART II

The Structural Pattern of School Districts as Related to Adaptability

In a state operating with much latitude for its local units, some school districts are pioneers, some are early followers, some are late followers, and some never move without compulsion from central authority. How much of this tendency can be traced to defects in structural pattern and organization of the school districts? The five chapters that comprise Part II seek to answer this question by noting the characteristics of adapting and non-adapting communities. Having to do with the scope and nature of the school district are the characteristics of local community life discussed in Chapter IV, the community cultural pattern discussed in Chapter V, and the size of school district treated in Chapter VI. Bearing on state participation in school finance are the characteristics of tax leeway and expenditure treated in Chapters VII and VIII.

All of these community characteristics are relatively stable. Only over a long period of time could they be changed within the school district solely for purposes of improving adaptability. When they change locally it is usually as a result of forces not operating through the schools. They require state intervention in the way of district reorganization and adequately designed state financial support. However, whatever the district organization and financial structure, they have a bearing on the nature of the allocation of control as between state departments of education and school districts.

The reader may wish to move at this point to the details of the adaptation process (participation of individuals and agencies) reported in Part III, and return later to the more abstract problem of structure dealt with in this Part.

CHAPTER IV

How Adaptability Is Related to Characteristics of Community Life

THIS chapter presents the results of study of certain cultural and demographic attributes of communities as related to the adaptability of the schools. It compares the adaptors and non-adaptors among the 344 communities and shows the relation of the characteristics treated to the general measure of adaptability for two small samples of thirty-six and forty-eight communities. The results have a bearing on the design of school districts. Along with the results reported in the other chapters of Part II, this should be taken into account in district reorganization on the one hand, and in the allocation of powers to existing districts on the other.

Community Culture

A representative group of eighth and ninth grade pupils in forty-seven school systems were given the McCall Educational Background Questionnaire.¹ The returns varied in number from twenty to forty in each school system. Since forty blanks were left with children in these schools, the lowest return in any one community was 50 per cent. In most cases the return was well over 90 per cent.

Since the McCall questionnaire is rather comprehensive in elements of the local social circumstances which it measures, it was used as a preliminary test of the degree to which communities differ in this respect. The content of the questionnaire constitutes a fairly meaningful index of the general cultural level of communities as reflected by certain home and community elements affecting the lives of boys and girls. It contains a section on the health of the child, the health of his family, his school plans, the schooling of his family, the schooling of the community in general, the child's study habits and home conditions for study, the social-economic status of his family, his relationship to other children, his

¹ McCall, William A. and Herring, John P. *Educational Background Questionnaire*. New York, Laidlaw Brothers, 1936.

relationship to his parents, and his relationship to his community.

A statistical analysis of the average scores of communities on the McCall questionnaire indicated *highly significant* community differences.² These scores checked well with field observations and, as is noted below, with other measures which can be expected to reflect or lie at the roots of the community cultural level.

From these results we can draw two conclusions: First, the McCall questionnaire as administered is reliable enough to show differences among communities; and second, the type of thing measured by the McCall questionnaire varies significantly among communities.

The question we raise is: To what extent is educational background, or elements of culture contained in this questionnaire, related to the level of adaptability of schools in a community? In seeking an answer to this question we made slightly different use of the McCall questionnaire than had been intended for it by its authors. For the original purpose, the title "Educational Background" is quite adequate. But since educational background, as measured by the questionnaire, contains so many of the elements of community life, we used it as a measure of the local community cultural level. Taking, then, the McCall educational background measure as an index of community cultural level, let us see how it is related to the present status of the nine specific adaptations in our study and what light may be thrown on the problem of adaptation by noting agreements and divergencies.

Statistical comparisons were made of communities *having* and communities *not having* each of the nine adaptations. Table 11 shows the result of this comparison. In forty-eight communities fifteen had kindergartens; thirty-three did not. The mean educational background scores in communities with kindergartens averaged 94.07; in those without kindergartens, 89.55. This shows that, on the McCall scale, communities without kindergartens are more than five points lower in culture level than communities with kindergartens. As indicated in Table 11, this difference is statistically significant. Similar comparisons may be made between McCall average scores in communities with and without each of the other eight specific adaptations shown in Table 11. A discussion of how com-

² Cf. Supplement B, pp. 452-454.

TABLE 11

Average Score on McCall Educational Background Questionnaire in Communities With and Communities Without Nine Adaptations, Forty-eight Pennsylvania Communities, 1937-1938

ADAPTATION	COMMUNITIES WITH ADAPTATION		COMMUNITIES WITHOUT ADAPTATION	
	<i>N</i>	Mean	<i>N</i>	Mean
Kindergarten	15	94.07	33	89.55 ²
Reorganized High School	27	93.52	21	87.67 ¹
Special Classes	26	93.08	22	88.45 ²
Homemaking for Boys	12	92.33	36	90.50 ⁴
Adult Leisure Classes	21	89.81	27	91.85 ⁴
Extracurricular Activities	28	92.50	20	88.80 ³
Elementary Final Examinations	20	93.30	28	89.29 ²
Integrated Curricula	4	95.00	44	90.59 ⁴
Supplementary Reading	16	94.38	32	89.25 ²

¹ Highly significant difference. ² Statistically significant difference. ³ Marked but not significant difference. ⁴ Inconclusive difference. Cf. footnote p. 57, for definition of these terms and Supplement B, Note 11, pp. 452-454.

munity cultural differences, as measured by this and other measures of community life, were found to influence the nine adaptations is presented below.

Community Culture and the General Measure of Adaptability

The foregoing measure of general culture level derived by means of the results of the McCall Educational Background Questionnaire was related to the adaptability of communities in general as measured by the *Guide for Self-Appraisal of School Systems*. It was found to have a highly significant³ relationship to the level of adaptability of schools. It was found, moreover, to be markedly but not significantly associated with the tax leeway grouping of communi-

³ In using terms of statistical significance in the interpretation of correlation, the amount of the correlation itself is not so important as knowledge of *the extent of assurance we have that in other samples it would not be zero*. In the present case the correlation was .509. This is classed as *highly significant* since for the size of our sample an accidental correlation of only as much as .418 would occur but once in 100 such samples.

ties. Its association with the size of the school districts was statistically significant.⁴ It appears that the Educational Background Questionnaire is affected by the extent of local culture and that the extent might be expected to be greater in large places than in small places. Most important of all, this measure might be expected to explain the differences among groups of communities classified according to financial resources. To bring out this point a tabulation of adaptability scores on the communities thus grouped and educational background scores is presented in Table 12.

It may be seen from Table 12 that the trend of variations in adaptability averages is followed very closely by the trend in general culture level averages. This relationship plus the association of culture level with size explains potentially a great part of the relationship of this measure to adaptability. In other words, the culture measure is associated with adaptability partly because it is associated with financial resources, and, again, partly because it is associated with size of district, both of which measures have been found to condition the extent to which the local community adapts educationally. As a consequence we find that the correlation be-

⁴ This is the first reference to a full use of the statistical control introduced in the sampling of thirty-six school districts visited in field work. The authors were particularly interested in controlling the influences of two factors which for some time had been known to bear heavily upon the adaptability of schools. These two factors were financial resources, or wealth of districts, and size of districts. Consequently the thirty-six communities were selected in such a way as to represent all the school districts in Pennsylvania with which we were concerned as to size and financial resources for the support of education. Allowance for the size-measure was made by grouping communities as (1) those above the average number of classroom units in our group, 55, and (2) those below this average. The financial resources of the community were considered by classifying them according to whether they fell in various sixths, of all school districts with which we were concerned, in tax leeway. The concept and meaning of tax leeway are explained in a subsequent chapter. An additional control in the selection of the thirty-six communities was geographical distribution. For this purpose the State was split into three geographical divisions.

This arrangement made it possible to obtain thirty-six communities which were definitely representative of the total group and it also made it possible to manipulate statistical results by means of analysis of variance and covariance techniques so as to view the relationship of certain factors to adaptability with and without the structural element of tax leeway and size screened out. In analyses which follow from this point on throughout the present volume, reference will be made to the interrelationships of adaptability and certain factors, and the effects of tax leeway and size upon these interrelationships.

A complete exposition of the mechanics of this technique appears in Supplement B, Note 12, pp. 453-460, Note 14, pp. 465-480, and Supplement A.

TABLE 12

Adaptability and Mean Educational Background Questionnaire Scores in Thirty-six Pennsylvania Communities Grouped According to Tax Leeway

TAX LEEWAY GROUPING ^a	NUMBER OF COMMUNITIES	ADAPTABILITY SCORE ^b			MEAN EDUCATIONAL BACKGROUND SCORE ^a		
		Low	Mean	High	Low	Mean	High
A	6	13	22.5	42	82	85.0	88
B	6	8	35.0	53	84	91.4	97
C	6	21	31.8	50	82	90.5	97
D	6	12	29.2	38	82	86.7	93
E	6	17	35.0	69	85	91.8	97
F	6	30	54.7	84	86	95.2	105
Total	36	8	34.7	84	82	90.2	105

^a From lowest (A) to highest (F) in tax leeway.

^b Adapted from *A Guide for Self-Appraisal of School Systems* on a scale of 100 points.

^a McCall Educational Background Questionnaire, see *supra*, p. 85.

tween adaptability and general culture, as measured here, drops to .2231 when the influence of tax leeway and size is removed. Moreover, when the effects of this measure upon adaptability are eliminated from our comparisons of tax leeway group averages in adaptability, the differences do not show up as being so high. Although they remain statistically marked, they fall below the point which would be considered not attributable to chance. This may be explained as follows: Part of the influences of both size and tax leeway on adaptability may be due to the associated cultural levels. It would seem that cultural level is an accidental concomitant of size, while tax leeway and cultural level are probably causally interrelated.

Another measure of general culture level showing results very similar to those above is the percentage of individuals in each district with McCall scores exceeding the third quartile point for all individuals for all districts. This is a measure of the relative weight of higher level homes in a community. Interestingly enough, it has a higher relationship to adaptability than has the McCall average, indicating that possibly the extent of the higher level element in a community counts more than the average level. The relationship of

this measure is directly interpretable with tax leeway groupings and size, as is the mean score on the Educational Background Questionnaire. It goes far to explain differences in adaptability due to wealth and differences in adaptability due to size. This may have an important bearing on district reorganization.

The foregoing analysis seems to indicate that the culture level of communities is an important determiner of the extent to which they have made adaptations. Statistically it helps to explain differences in adaptability due to financial resources and size, which further supports the conclusion that the local culture pattern plays a great part in determining the character of the local educational program.

Population Age Distribution

There are a number of considerations bearing upon the age distribution of population which have been noted by writers studying the various questions of public education. Edwards, in a study for the President's Advisory Committee on Education,⁵ has shown that the ratio of children to adults is highly related to the finance resources of counties and the financial level of education supported. One volume of the New York State Regents Inquiry Commission shows in some detail how the percentage of the male population less than twenty-one years of age is related to many other aspects of community life.⁶ The Regents Report also treats many other aspects of demographic data in its relation to the educational problem.

The purpose of our consideration of this population factor is somewhat different from that of previous studies. We are concerned here with the effects of variation in the age distribution of population upon *adaptability*. In terms of present methods of treating the financial abilities of districts, the question of the ratio of children to adults, while highly related to certain economic factors of communities, does not serve as a useful means of measuring⁷ either educa-

⁵ Edwards, Newton. *The Extent of Equalization Through State School Funds*. Report of the Advisory Committee on Education, Staff Study Number 6. Washington, D. C., 1938.

⁶ *School and Community*. Report of the Regents Inquiry. New York, McGraw-Hill Book Company, 1938.

⁷ Mort, Paul R. and Lawler, Eugene S. *Principles and Methods of Distributing Federal Aid for Education*. Report of the Advisory Committee on Education, Staff Study Number 5. Washington, D. C., 1939.

tional need or taxpaying ability. The emphasis, therefore, which we are placing on this measure is directed toward sociological implications rather than economic in so far as they are related to the adaptability of communities.

The measure we have used is the reciprocal of measures commonly employed. Instead of the ratio of children to adults, we have taken simply the percentage of population in a community over twenty-one years of age. Arithmetically there is some difference in such a statistic from the usual figure, but as we use it we get a measure of the age of the population of the community. One might expect that in view of studies of population trends, communities with larger proportions of adults would be in a better economic position. On the contrary, we find that although our communities vary considerably on this measure, the only noticeable difference is to be found in the one-sixth of the communities which are lowest in financial resources. Statistically we may say that no relationship exists between the financial resources of communities and the proportion of population over twenty-one years of age in communities other than the very poorest. From the economic standpoint it therefore appears that the age distribution of population is a matter of concern only with reference to the economic problem areas.

As noted by students of population, the main contrasts are based upon urbanness, for we find highly significant differences between our large and small classes of communities in the proportion of population which is adult. As far as adaptability is concerned, this measure is very significantly associated with the extent to which communities have taken on new practices. But this relationship is colored by the fact that age distribution is partly accounted for by differences in wealth and differences in size or urbanness of communities. *Communities of the same size and of the same economic resources show a very slight positive correlation between this measure and adaptability*, one which, in our sample, could have appeared because of chance.

It seems reasonable, therefore, to conclude that the statistic under consideration here bears little, if any, direct influence upon adaptability. Its significance to the student of adaptability is apparently the fact that it is symptomatic of other social and economic charac-

teristics of communities, such as urbanness and wealth, and all the cultural differences which these factors represent.

Home Ownership

The home-ownership measure has been shown in other studies not to be highly reliable or significant. The classification of homes as owned homes and rented homes by our respondents is not to be considered discrete because there are many degrees of home ownership, and the extent to which home ownership would represent stability of population or degree of stability of family life might be affected considerably by the fact that many individuals with substantially large incomes, supporting well-balanced family lives, would rent properties for various reasons, while in some communities the most humble homemaker might find it possible through favorable conditions of mortgaging property to report home ownership where actually he had but a small equity in the property. That there are variations in the degree of home ownership according to patterns of community types is suggested by the fact that the measure shows rather important differences among the three geographical divisions of the State, although these differences are not statistically significant.

The central division of the State showed a lower proportion of families owning their homes in large districts than was shown by the other two divisions of the State. The small districts in the central division, however, showed on the average a higher proportion of home ownership than was shown by similar districts in other divisions of the State. No explanation is to be had for this difference, but as noted elsewhere in this volume, communities differ greatly in type among the three geographical divisions.⁸

For all it lacks in reliability, the measure of home ownership was found to be significantly related to the adaptability of schools. The better schools were found in communities which had, on the whole, a larger proportion of persons owning their own homes.⁹ A great

⁸ In the present chapter frequent references are made to *community types*. This refers to a classification reported in Chapter V which was found very useful in explaining differences in adaptability. The categories are: (1) Rural, (2) Industrial, (3) Residential, and (4) Composite. Cf. pp. 119-123.

⁹ The correlation was .403.

part of this correlation between adaptability and home ownership may be attributed, however, to the influence of size of districts. The correlation with adaptability in communities comparable in size and financial resources was negligible.

As with other abstract measures of the culture pattern, it appears that the proportion of families owning their own homes is related to adaptability, not because of *direct* significance, but because it is symptomatic of other circumstances, such as the financial resources of the community, its size, or the geographical type. At least it might be said that this measure does not explain the contribution of wealth and size to variations in adaptability.

Community Schooling

The proportion of adults in a community with schooling above the eighth grade was found to have a highly significant relationship to the adaptability of schools in communities. The correlation coefficient was .536. A highly significant relationship, as may be expected, exists between this measure and the financial resources of communities and again between this measure and the size of communities. The variations within communities, however, are relatively high. For example, two small communities of approximately the same financial resources were found to have, respectively, 7 and 51 per cent of adults with education above the eighth grade.

Although the relationship of this measure—the schooling of the community—to adaptability is, in part, attributable to the influence of differences in wealth and size of communities, there remains a noticeable degree of relationship among communities of comparable size and financial resources ($r = .269$). This measure potentially explains a great deal of the relationship between adaptability and financial resources of communities. At least when communities are treated as though all were comparable in the extent of schooling of adults above the eighth grade, we find that the significance of the relationship of adaptability to financial resources is considerably reduced. The same may be said for the relationship of adaptability and size of district. This, too, may in part be explained by the potential contribution which the adult schooling measure of communities has to differences among large and small communities.

Another measure of the schooling of a community is the percentage of adults who had attended college. As might be expected, this measure was found to be highly related to financial resources of communities. On the whole, people in poorer communities lack the resources required for sending their children to college; and those who do find it possible to go on to college rarely return to become members of the adult population of their home town after college graduation.

For reasons difficult to explain, the trend was not found to be regular in this measure from the poorest to the wealthiest groups of communities. Communities ranging between the 50th and 66th percentiles in wealth or financial resources had an average proportion of college graduates exceeding only the group below the 17th percentile, the lowest group of communities in financial resources. This, however, followed somewhat the pattern of the distribution of adaptability among communities ranked on the basis of financial resources. As with the other measure of schooling, the proportion of college graduates was found to correlate highly with adaptability.¹⁰

Comparing communities with the same financial resources and the same size, we find a marked relationship. Since, moreover, differences observed in the adaptability of communities grouped according to wealth are less than what might be considered significant when the influence of the proportion of college graduates is eliminated, the financial resources measure has special significance. It is quite evident that there are things represented in community life by a measure of financial resources other than differences in the economic capacity of people in the community to support education. It is the poor community, by and large, which has a small proportion of those persons who have the intellectual insight which college training, adequately or not, might be taken to indicate.

Satisfaction of Adults with Community

By far the commonest reply to the question asking citizens whether they thought their community as good a place to live in as any other was the affirmative. In the average community about 86 per cent of the adults indicate that they are satisfied with being

¹⁰ The correlation was .511.

located where they are. The proportion of affirmative replies, however, varies considerably among the thirty-six communities covered by field surveys.

Evidently a great many factors not controlled in our study contribute to this type of measure. This is revealed by an examination of the returns from the particular communities. In the community showing the least proportion of satisfaction, we find a peculiar set of circumstances which would seem to have contributed to a low degree of community pride. At one time this community had been a fairly attractive suburb, with a small partly industrial development. Over a period of years the industrial advantages in the community had been utilized to a higher degree as the metropolitan center of which it was a part expanded. The residential quality of the community was lost to new areas farther out from the metropolitan center. As people of larger incomes left they were replaced by lower income people coming in to participate in the industrial development of the community. We found a low proportion of persons listing the school among the advantages of this community, suggesting, as noted above, that other matters, including the wage-earning needs of human beings, were now largely responsible for the presence of a good share of its inhabitants.

The changing character of the type of population in this community was responsible, moreover, for a great deal of dissatisfaction on the part of the older inhabitants. This sentiment was reflected in interviews with important townspeople, most of whom were engaged in local enterprises of a professional or a retail distribution character, and was verified by the editor of the local newspaper, a man with complete understanding of the problem, having inherited his proprietorship from his father, who had developed the local newspaper prior to the increase in local and industrial expansion.

We found another community ranking low in this measure of community satisfaction but ranking among the very highest in adaptability. A study of the processes which brought about a high level of adaptability in this community shows that they were matters entirely independent of local population considerations; in fact, this particular community rated low on a number of economic, pro-

fessional, and community factors, a fact which was offset by the zeal of a superintendent of schools who had very strong convictions of the need for changes in the school program and who had accepted his commission as superintendent under very favorable circumstances for having a relatively free hand in introducing needed reforms.

In a third community we found 100 per cent of our sample of parents reporting satisfaction. This community was a relatively isolated rural settlement in which the most frequently mentioned local advantage other than education was the church. This reflects the history of this community, founded in 1814 by a group of individuals belonging to a religious sect which advocated practices of simple living of the type encountered in this small rural community.

Strangely enough, we found that in communities of the rural type, which, it is to be noted, are communities in which adaptability is the lowest, the degree of community satisfaction was the highest. As was indicated above, this might be due in part to the particular type of resignation of some rural inhabitants to the simple type of life which they lead, often induced by religious doctrine in the older Pennsylvania settlements. It might also be due to the less frequent occasion which these people have for contact with other types of communities. Many of them are relatively isolated, and a good number of inhabitants within 100 miles of Philadelphia have never been to that city.

The group of communities which, on the average, ranked second in order of community satisfaction was the residential type. The communities in which there was least community satisfaction were the industrial type. In most of the coal-mining towns we found more than 30 per cent of the inhabitants who would like to live in another community.

Although, as indicated in the foregoing, the measure of satisfaction with community is related to community type, it is not related to adaptability, nor is it associated with economic resources of communities, their size, or their geographical location. It was found not to have correlation with adaptability even when the relationship was computed in terms of comparability of communities in financial resources, size, and community type.

Population Stability

The most significant statistical index of population nativity was found to be the percentage of adults, in our sample from each community, born in the community itself or its environs. From our data sheets this fact was determined by including as "natives" those who had been born within the county in which the community is now located. The lowest proportion of natives was found in a residential suburb of Philadelphia. The community with the next lowest proportion was a semi-independent community in the Philadelphia zone of influence, which was in part rural but to which there had been a great deal of migration from the city by families desiring country living. Two other communities in which only 11 per cent of the inhabitants had been born within local territory were industrial communities, one created during the war in connection with government ship-building construction, and another which had become the center of a new steel plant. On the whole, however, the industrial community, especially of the type which had not had recent and sudden development, and the composite community were the types with the highest proportion of inhabitants born in the neighborhood. Yet our data indicated that differences among community types were not *statistically significant*.¹¹ They could easily have appeared simply because of sampling errors. Furthermore, the relationship between this measure and adaptability was not great enough to explain differences among community types.¹²

The nativity measure was associated neither with financial resources nor with size. Geographical differences were slight and statistically inconclusive. The total correlation with adaptability was negative, but not great ($r = -.191$). However, when communities of similar type only were considered in the relationship, the correlation was found to be highly significant and negative ($r = -.356$). It appears, therefore, that among communities of similar characteristics the question of stability of population is a significant conditioning factor. The greater the degree to which a community has new population coming in from outside, the more it

¹¹ Cf. *infra*, pp. 464-480.

¹² *Idem*.

finds expansion and adaptability in the educational program. This fact is not to be explained entirely from data which we assembled from field work. It is quite possible that a community with a high proportion of its inhabitants staying at home and a low proportion coming from outside is the type of community in which there will be greater stability and conservatism in tone. This, in part, might be due to a greater amount of change in the local culture pattern of a type not measured in our study.

On the other hand, it is quite likely that the community which has received, by migration, inhabitants from elsewhere, is a community in which there has been also a growth in total population and expansion of local business or industrial enterprise which would necessitate an expansion in the local school program. Where expansion in the local school program is required there is greater opportunity, through the addition of teachers, school buildings, and the like, for the introduction of innovations. In such school districts the new may be introduced without the difficult necessity of tearing down the old.

The relationship between stability of population, measured in terms of nativity, and stability of population, measured in terms of population change from 1920 to 1930, was found to be significant ($r = - .374$). For this reason we have made a separate treatment of population change as it affects adaptability of the school program. During the ten-year period from 1920 to 1930, one suburban residential community had almost doubled its population. In one rural community there were, in 1930, only 89 per cent as many inhabitants as there had been in 1920. This measure was not found to be significantly associated with the financial resources of communities, although the wealthier districts in our sample tended to have greater population increases. There was no difference between large and small places in our sample in rate of change, nor were there geographical differences. This measure was found to have a higher total relationship with adaptability than the nativity measure.

These results tend to support the hypothesis noted above that it is not the factor of nativity so much as the concomitant factor of population increases which influences adaptability. When the effects of financial resources, size, geographical region, and com-

munity type are eliminated, there is still a marked significant relationship between this measure and the adaptability of the school program. Differences among community types were not found to vary significantly.¹³ The industrial community on the whole tended to have increased least in population and the residential type of community most. The measure of population was not found to explain differences in adaptability among community types.

Occupational Characteristics

From questionnaires left in the hands of parents and citizens, we derived a sample distribution of occupations in each community. Each respondent was asked to list his occupation. Replies were classified into eight broad categories:

- | | |
|---|-----------------------------|
| (a) Homemakers | (f) Lower professional and |
| (b) Unskilled labor | large business enterprise |
| (c) Semi-skilled labor | (g) Higher professional and |
| (d) Skilled labor | business executive |
| (e) Technical, clerical, supervisory responsibilities | (h) Public service |

Since homemakers are made up of both wage earners and non-wage earners, the homemaker group was eliminated from consideration in our occupational analysis. At one end of the scale we found the proportion of occupations of the unskilled labor type a measure showing great differences among communities. At the other end of the scale we found proportions of persons in white collar occupations to represent in a similar but slightly different way the occupational level of the community. For this measure the last three occupational groupings were treated in the category of *white collar*. They include the professional, retail distribution, and public service categories of occupations.

Of the various statistical measures which we have considered among those dealing with the social life of communities, we find the proportion of wage earners engaged in the white collar occupations to yield the highest relationship with the adaptability of schools.¹⁴ The occupational level of communities is noticeably, but

¹³ *Idem.*

¹⁴ Correlation between adaptability and proportion of white collar workers is .590.

not highly, associated with the financial resources of the community, and it is highly associated with the size of the community and the community type, for there tends to be a lower proportion of white collar occupations in communities of lower financial resources, in small communities, and in rural communities.

While this measure does not explain the influence which wealth or financial resources have upon adaptability, it explains a great share of the effects of community type and size upon adaptability. It appears that one reason why large school systems and school systems in the residential or composite community type are more adaptable than others is the fact that in these communities the adult population is engaged in types of occupations which represent a higher degree of skill, intellectual capacity, and training. Greater proportions of persons engaged in higher occupations are found in residential communities and in composite communities which have not been broken down into various zones or segments of community existence. In the rural and industrial types of school district, there are concentrations of the skilled and unskilled labor classes of occupations—concentrations of a type of wage-earning activity which has been found most commonly in school districts that have made least change. Even when the effects of differences among communities in financial resources, size, and community type are removed, there remains a significant relationship between the measure of occupational type and adaptability. This is perhaps one of the most certain and most striking conditioning community factors which we have observed in our study of adaptability.

Parochial and Private Schools

The degree to which community support is divided in school districts between the public school system and private schools was found to have a marked relationship to the school program but not a significant one statistically. Communities matched in terms of certain basic community factors, or communities not so matched, show a negative relationship between the ratio of parochial and private school enrollment to public school enrollment and adaptability of the public school. Although, as a whole, we cannot establish any general rule as to the effects upon educational progress, it appears

rather definite that the extent to which we introduce a dual system of education, to that extent we detract from those energies producing advances in public education. From observations in the field, we cannot overlook the fact that in some instances the division of support between two systems of education has been highly detrimental to the public schools. In one community there were three and a half times as many children in private and parochial schools as in the public schools. For this particular community a duplication of educational service was obviously harmful. In other cases we found duplications of particular services blocking the introduction of specific adaptations. In one case private school representatives objected to a movement under foot for a public kindergarten because unless this innovation were also introduced in the private school, families patronizing the latter would be denied a service which might attract them to the support of the public school system. In another case, so many children in the community were found to be attending parochial high schools that only a skeletal attendance remained for the public high school. Had all children of high school age in this community been grouped together under one educational organization, it is quite likely that the introduction of a junior high school program and many other advances in the community youth education service would have been possible.

Community Culture and the Nine Adaptations

We shall view in some detail the operation of community cultural characteristics upon the diffusion of our nine adaptations. In general, the cultural level of a community is a factor which has a highly significant influence on diffusion. Thus we find, as indicated above, that communities with kindergartens, reorganized high schools, special classes, new bases of promotion of elementary pupils, and opportunities for extensive reading with elementary school children, have a significantly higher average cultural level than communities which are not able to make these adaptations, aside from differences in contributing circumstances noted above. Noticeable, but less significant, differences in the same direction were observed with reference to extracurricular activities in the high school and integrated curricula in the high school. Two adaptations, adult leisure classes

and homemaking for boys, did not follow a pattern of diffusion through communities of higher culture level. In these two adaptations it was noted that there is a tendency for a greater manifestation of need in communities of low social status than in others. This to some extent would tend to offset the tendency for communities on a higher level of culture to be the first to take on new educational services.

THE KINDERGARTEN

As we have noted, kindergartens are definitely located in places with a higher level of the elements of culture covered in the McCall questionnaire. In field work, a number of local peculiarities were noted which definitely or implicitly conditioned the impingement of the need for a public kindergarten, or the likelihood of the community responding to the need. In most small rural communities the problem of transportation was an important factor. This problem was important especially in rural communities with limited resources because of the cost of transporting children in sparsely populated areas. The inconvenience and hardships to small children in riding considerable distances to and from school also had to be considered. In communities which had a high degree of educational service provided through private means, we often found kindergartens established in connection with private schools or parochial schools. This partially removed pressure upon the public school system for this service. In other communities where W. P. A. nursery schools were operating in public school buildings, even though these schools supposedly enrolled only preschool children under five years of age, it appeared that this service tended to lessen pressure upon the local public school system for maintenance of public kindergartens. They were often coupled with the work project attitude toward schools which insisted that no teachers at all be dropped.

In a community which did not appear to have a high level of social and economic circumstances favoring the kindergartens, one condition, however, was directly responsible for its introduction. Rapid decreases in elementary school enrollment were freeing teachers and facilities, especially classrooms, which could be utilized for kindergarten purposes without apparent increases in cost to the dis-

trict and to its taxpayers. In high-level residential and suburban communities, on the other hand, made up of comparatively stable middle-class families, we encountered the argument against the kindergarten that only a small proportion of the mothers worked and in only a few homes was the care of small children assumed exclusively by the mothers themselves. The care of small children was in the hands of servants and others who, it was felt, adequately provided for their needs.

In contrast were the industrial or mining communities with high percentages of foreign-born citizens living on a low cultural level, with high birth rates and high ratios of children to adults, and with inadequate provisions for the training of young children in the home. Here it would appear that there was great need for public kindergartens, but it was in this type of community that they were less frequently introduced. A low level of economic resources retards the introduction of kindergartens because of the cost involved.

REORGANIZED HIGH SCHOOLS

As was seen in Table 11,¹⁵ there is a highly significant difference between the McCall questionnaire results in communities having reorganized high schools and those not having such high schools. There are a number of circumstances which militate against introducing this adaptation because of local peculiarities in the culture. In some cases this is evident in schools in small rural districts. Among other peculiarities of local communities are characteristics of personnel and present plant facilities. These, although not directly related to the community life, restrict the reorganization movement. In one community, for example, the objection to reorganization was the fact that the district had teachers qualified for the 8-4 organization but not for the 6-6 or 6-3-3 organization. Moreover, the plant in this community, which very likely will not change in the near future because of stability of school population, was not set up for junior high school work. Some districts were so small that all the high school children were sent to other districts for their high school education. In one community there was a very peculiar resistance to the junior high school movement because of separate

schools for Negroes. Even after the change had been made there was a movement under way to have the seventh and eighth grade Negro children housed in a separate school.

SPECIAL CLASSES

The difference between the McCall averages in schools having special classes and those not having them is significant. (This is shown in Table 11.¹⁰) This difference has special meaning, for one would expect a greater incidence of special problems in communities where the general social and economic level is low. It is evident that these communities are not always the ones which have made the adaptation. On the other hand, there is the small rural school which could not have special classes because of size limitation, although in many cases this appears to be an over-stressed defense. Generally, school people tend to take the mechanistic approach to a solution of these problems. They think of handling such matters only by administrative reorganization, involving, for example, the special class, but when asked what is done for cases encountered in their own schools, they indicate that these children face their special problems without any remedial care whatsoever.

A peculiar social opposition to the organization of special classes is encountered in certain communities. In some places it appears that the people do not really care to recognize orthogenic cases when they have them. They feel that providing special classes would emphasize a characteristic of their population which they would rather not think about. In one community the presence of separate educational problems for Negroes, among whom the incidence of orthogenic cases was great, precipitated the establishing of the first class. Later a storm of protest broke out when a large number of white children were put in the special classes along with Negroes. The special classes were discontinued.

HOMEMAKING FOR BOYS

The difference between the McCall questionnaire scores in the places which have made the homemaking for boys adaptation and in those which have not made it is inconclusive. However, there is

¹⁰ *Supra*, p. 87.

a tendency for communities with this adaptation to be higher in general culture level than communities without it.

There is one way in which the economic life of the community might indirectly contribute toward favoring this adaptation. It has been observed to depend to some extent upon the presence of vocational home economics of the type that is quite frequently found in highly industrialized urban communities, with foreign-born population and certain other culture characteristics which tend to be low. The small rural school has its peculiar problem in not having facilities for this type of work. Just how this is related to elements of the culture is not revealed in our community studies.

ADULT LEISURE CLASSES

The average McCall score for places introducing the adult education adaptation was found to be slightly but inconclusively lower than that for places not having this adaptation. Such negative influences as this indicates are probably attributable to two causes: (1) the Federal Government, in its emergency and vocational education programs, has attempted to provide services of this type where people are in greatest need of it; and (2) the McCall questionnaire to some extent is a measure of the educational level as well as the social and economic level of a community and in many communities in which there is a large proportion of high school and college graduates it has been found difficult to get people into the schools for leisure activities on any large scale. In these places the local community is highly organized, with women's clubs, sports clubs, and so on, for provision of leisure activities outside the school. Moreover, most of these people have the financial means to avail themselves of many avenues of rich experience, such as trips, the opera, museums, which also lessen the need for public adult education, at least in the minds of these people themselves and the school people in these communities.

EXTRACURRICULAR ACTIVITIES

Although there is a slight tendency for communities with this adaptation to be on a higher culture level than others, the difference is best described as marked but not significant. The marked relation-

ship observed, however, might, in no small part, be due to the fact that communities which, on the whole, have more adaptable schools are those in which richer experiences are offered in the extracurricular work of the high school. These communities also tend to be communities high in general attributes of culture. It is quite obvious that communities with a high degree of organization of economic and social and intellectual life are those in which greater opportunities may be expected for the provision of rich extracurricular activities.

ELEMENTARY FINAL EXAMINATIONS

The abandonment of elementary final examinations and the development of other bases of promotion of elementary school children also appears associated with community culture. There is a significantly higher average culture level in communities which have made this change than in communities which have not. No direct explanation has been observed for this in our field work. We know, however, that this type of adaptation is one which will be closely linked with the general level of adaptation in a community and this, as will be shown later, is highly associated with the nature of the local culture pattern.

INTEGRATED CURRICULA

There is a marked difference in the average educational background score of communities which are now experimenting with some form of merged or integrated curricula and communities which have not departed from traditional subject matter organization in the high school. Differences between means of these groups are inconclusive. But this may well be due to the small sample of communities that have introduced experimental work in this area. Of the forty-eight, we credited only four communities with this adaptation. Nevertheless, the outcome of the comparison in this case is as is to be expected. It has been pointed out before that the integrated curricula adaptation is the newest of those we have studied, and it is the type of adaptation commonly appearing in communities which tend to have the most complete form of social and economic life.

SUPPLEMENTARY READING

This adaptation is highly related to the culture of the community, as is revealed in Table 11. This is probably due in part to the financial aspects of this adaptation. At least one thing contributing very largely to the innovation is the ability of the community to purchase large quantities of books.

Summary

The general measure of cultural level of the community is significantly related to adaptability.

1. In general, communities on a high level are early adaptors. Those on a low level tend to lag.

2. Part of the influence of size and tax leeway on adaptability is explained by accidental or causal relationships with cultural level.

3. Adaptability is more closely related to the percentage of population relatively high in cultural level than to the average of the whole population.

4. The age of the population (per cent over 21) within the ranges studied bears no significant relationship to adaptability.

5. Home ownership is related to adaptability but adds nothing to what we obtain from size and wealth.

6. The measures of educational level of the community give much the same results as the measures of cultural level. Its relation to adaptability is highly significant. Part of its influence is measured by the size and wealth indexes, but even when the common factors are removed there remains a high degree of relationship.

7. The proportion of the population born in the county in which the community lies was found to be negatively but not significantly related to adaptability, except when communities of the same type are considered.

8. Population increase is more closely related to adaptability than the nativity measure. Its relationship remains markedly significant even when we remove the elements it contains in common with financial resources, size, geographical region, and community type.

9. Of all the measures dealing with the social life of the com-

munity, the percentage following white collar occupations yields the highest relationship to adaptability. This measure has some influence in common with financial resources. It goes a long way in explaining the effect of size and community type on adaptability.

10. While the relation between the percentage of children in private and parochial schools does not appear statistically significant in our sample, it was found to be marked and negative.

Adaptability and Community Types

A HIGH degree of relationship of certain characteristics of communities is apparent from the analyses presented in the previous chapter. In order to examine the influence of these factors on the process of adaptation in a study of the sample of thirty-six communities in Pennsylvania, certain controls were introduced which made it possible to view community characteristics in the light of geographical distribution, or, perhaps more aptly, in the light of varying degrees of community interdependence.

The extent to which the nature of the community might depend upon the division of the State in which it is located may be observed by examining Figure 15. In the western division of the State it may be observed that there is an unusually high density of school districts from our large sample (and of all districts in the State) in the Pittsburgh and surrounding regions. This has been explained by the economic geographer. Regardless of the causes, it is apparent that a great number of communities in the western part of the State, although possessing their own individuality in cultural life, are bound to be satellites of the great industrial areas centering about Pittsburgh.

Again, in the eastern part of the State, we find the Philadelphia metropolitan zone of influence, the Scranton, Wilkes-Barre, Easton, Allentown, Bethlehem zone, and the Reading, Lancaster, and York zone around which communities tend to gravitate. At least there is greater opportunity for communities to fall into the zone of influence of larger centers of human activity in the east and in the west than in the central part of the State, although there are important industrial and trade centers distributed through the entire State.

Communities in the central territory of the State tend to be geographically isolated from these centers or other huge metropolitan areas.

Three Geographical Divisions

The geographical distribution of the thirty-six communities in which extensive study of the degree of adaptation was made is shown in Figure 15.

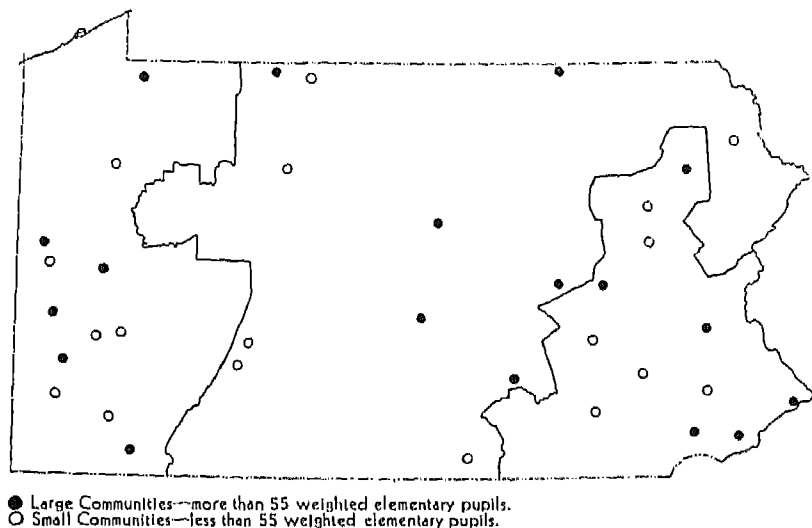


Figure 15. Geographical Distribution of Thirty-Six Pennsylvania Communities (Western, Central, and Eastern Divisions)

For purposes of comparison, the twelve regions of the State were combined into three divisions: the Eastern Division, consisting of the highly urbanized regions in the eastern part of the State; the Western Division, including the highly urbanized Pittsburgh Region and parts of Western Pennsylvania; and the remaining part of the State, the Central Division, which is somewhat less densely populated and somewhat less urbanized. The reader must observe that geographical areas have been made larger than those in the earlier graphs. This has been necessary because of the relatively sparse sampling of communities; however, it tends to produce a rather ungenue picture of territorial similarity. It is not to be assumed that any great degree of homogeneity is to be found within these three divisions of the State.

Roughly speaking, the school population of these three divisions is about the same. There is a slightly greater concentration of popu-

lation and economic activity in the eastern and western regions. However, there are more districts in the Central Division than in the others, although these are, for the most part, fourth-class districts. Nevertheless, the three divisions of the State are roughly comparable as to the opportunity for the diffusion of the adaptations in so far as number of districts and educational responsibilities are concerned. Therefore, the thirty-six districts have been distributed equally among the three divisions.

As may be seen in Figure 15, there are six large and six small school districts in each of the three divisions. It is of interest to note how the adaptability of these communities compares among the broad divisions of the State.

There are many communities which will be shown to have common qualities with communities in other geographical divisions. Table 13 shows the distribution of the level of adaptability in communities of these three divisions. Separate development is made in this table of the large and the small communities.

We now raise the question: Are there geographical differences in the level of adaptability, as indicated not by a single adaptation or the nine adaptations, but by a large sample, revealed by an extensive survey of the school program? We observe that the most adaptable community is found in the western part of the State; also, that the least adaptable community is found in the Western Division. We find that in the central part of the State the lowest community is not so low, and the highest community is not so high, as those in the other two divisions. The Central Division, however, represents on the average a greater degree of adaptability both in small communities and in large communities. Although we have only thirty-six cases, our cases are highly representative.

We must now determine the extent of geographical differences which sampling error will permit. To what degree are the differences in the averages of the three regions to be depended upon? A statistical test of the extent to which these differences might be explained by sampling error reveals that they are inconclusive.¹

For the sake of hypothecating certain geographical interpretations

¹ See *infra*, pp. 453-460, for analysis of variance of adaptability of thirty-six communities.

TABLE 13

Adaptability of Sets of Financially Comparable Communities^a in Three Pennsylvania Geographical Divisions, 1937-1938

GEOGRAPHICAL DIVISION	SMALL COMMUNITIES ^b				LARGE COMMUNITIES ^c			
	No.	Adaptability			No.	Adaptability		
		Low- est	Aver- age	High- est		Low- est	Aver- age	High- est
East (Regions I, II, III and IV)	6	20	29.6	62	6	13	37.6	66
Central (Regions V, VI, VII, VIII and IX)	6	17	31.5	53	6	29	47.7	69
West (Regions, X, XI and XII)	6	8	19.7	38	6	15	42.0	84

^a Financially comparable means that districts have equivalent potential local tax leeway in dollars per pupil (see *infra*, p. 154). For each small community in the Eastern Division of the State there is a community in the Central Division and another in the Western Division with approximately equivalent potential unutilized local resources. The same is true of large communities.

^b Communities with weighted elementary classroom units of less than the median number (55) in a large sample of 344 Pennsylvania districts. Adaptability measure on scale of 100 points adapted from Survey Manual (see *supra*, pp. 5-13).

^c Communities with more than 55 weighted elementary classroom units.

which have appeared important to us in our field work, let us assume that these differences are genuine; that is to say, that the Central Division of the State is more productive educationally than the other two divisions. How might such an observation, *if it were known to be true*, be explained in terms of the geographical distribution of communities in the three divisions concerned? In order to make this analysis it is important to point out that the three territories differ greatly in the manner in which they are broken up into school districts and minor political subdivisions of the State.

Symbiosis and Adaptability

The biological term *symbiosis* has been used by students of human ecology to express the operation of interdependence of social

elements in a geographical area. The principle we are concerned with in the present analysis is symbiosis. Later in this chapter we show how high levels of social and economic life in communities, where there are apt to be the greatest amounts of specialization and interdependence of human activity, are related to adaptability. At this point we desire to consider the possible effects of symbiosis or interdependence of communities upon educational adaptability.

Two manifestations of symbiosis were given consideration. In the first place, the degree of dependence of one community upon others might be thought to be represented by its spatial relationship to these communities. It had appeared during the field studies that the isolated community, apparently more independent in social and economic life from other communities than those located in close proximity to densely populated centers, tended to be less adaptable. Any such analysis would of course depend upon the understanding of the fact that degree of isolation is much more than mere spatial isolation because of the modern development of means of communication, socially and economically. Nevertheless, this possibility was considered worthy of study.

A second interpretation of symbiosis with respect to the study of communities involves a classification not on the basis of possible degree of dependence or independence of one community upon others, but upon the nature of the part each community would play in the symbiotic pattern. It was thought that a study of the function of the residential community, representing one type of contribution to the interchange of social and economic activity, in contrast to the function of, let us say, the industrial community, representing an entirely different contribution to the symbiotic group, might serve as a basis for understanding differences in adaptability of school districts. In other words, is the adaptability of a school related to the type of regional socio-economic function served by the community in which it is located? The two bases of approaching the study of the factor of symbiosis of communities resulted, therefore, in the classification of communities in regard to (1) degree of geographical isolation, and (2) community character.

GEOGRAPHICAL ISOLATION

Let us now turn to a consideration of geographical isolation of communities or the factor of spatial independence.

After an examination of the location of each community with reference to the metropolitan zones of influence in the State, the communities were classified somewhat crudely into types in terms of the degree of geographical isolation. Definitions of these categories must, indeed, be taken as nominal definitions, because in modern social life there are no communities completely isolated and there are no communities completely lacking in individual characteristics. We find, however, some communities which in our field studies are spatially separate and independent from larger centers if only because of linear distance. We find some school districts which, because of accident of district organization, are really a part of a larger community in terms of local social and economic life. There is a middle group of communities, neither isolated nor suburban—communities of the satellite variety, for example, in Monroe and Delaware Counties, with interests which gravitate toward the business life of Philadelphia but which lie far enough from the built-up metropolitan territory to take on certain characteristics of isolation.

Table 14 shows the frequencies with which these three types of communities appear in our sample of thirty-six and the average level of adaptability observed. The isolated school district, of which there were eighteen in our sample of thirty-six, apparently has a

TABLE 14

*Distribution of Thirty-six Pennsylvania Communities by Community
Geographical Isolation Groupings*

GROUPING	NUMBER OF COMMUNITIES	ADAPTABILITY MEAN ^a
Isolated	18	36.0
Semi-isolated	8	35.6
Suburban	10	31.5
All communities	36	34.7

^a From *A Guide for Self-Appraisal of School Systems* reduced to a scale of 100 points.

greater degree of capacity for adaptation, the semi-isolated slightly less, and the suburban community less than the other two. Let us not be misled, however, on this observation, particularly since we know that some of our best schools were located in suburban areas.

A statistical test of significance of the means in Table 14 reveals that the means of groups according to geographical isolation classifications are decidedly inconclusive.² It does not appear from this analysis, therefore, that the spatial interrelationship of communities plays an important part in educational adaptability.

COMMUNITY FUNCTION

Let us examine a further qualitative classification of our communities in terms of the type of function served by a community in the symbiotic group. In Table 15 we have classified communities in terms of the four categories typified by the predominant type of social and economic life in each. The first type of community is the exclusively or predominantly rural type in which there is a substantial element of farm population. The next type is the predominantly industrial. The third type is the predominantly residential. The fourth type is the composite community which tends to be a symbiotic unit within itself, containing its own residential territory, serving also as its own trading area, and having a peripheral agricultural section with which there is a close degree of economic interdependence.

TABLE 15

Distribution of Thirty-six Pennsylvania Communities by Community Character Classifications

CLASSIFICATION	NUMBER OF COMMUNITIES	ADAPTABILITY MEAN ^a
Rural	7	18.9
Industrial	10	29.5
Residential	5	44.0
Composite	14	43.0
All communities	36	34.7

^a From *A Guide for Self-Appraisal of School Systems* reduced to a scale of 100 points.

² Cf. Supplement B, Note 14, pp. 460-480.

Very noticeable differences appear in the level of adaptability among these four community types. The rural group averages under twenty on a scale of 100. Next in order are the industrial communities. These are followed by the composite and the residential communities. A statistical test reveals that the variations of the means between the four community types, as shown in Table 15, are highly significant.³

The full geographical significance of our two classifications of districts, (1) as to geographical isolation and (2) as to community characteristics, appears when one examines the distribution of these classifications among the three divisions of the State. It is sufficient to say at this point that there are highly significant social and economic factors associated with communities thus classified which make it possible to define them better than has been done here, and which enable us to throw light upon the manner in which adaptability in community types varies as it does. This analysis appears below.⁴

Community Isolation and Function

A manifold classification of communities according to the three geographical divisions of the State is given in Table 16. From what has been said in earlier sections of this report regarding the character of regions which make up these divisions, and from staff experience in visiting many communities throughout the State, we are in a position to say that the distribution represented in Table 16 is quite typical of the distribution of communities in the State as a whole.

The predominance of isolated communities with composite characteristics, communities which tend to be complete units possessing the various attributes of village or city living, in the central division of the State, suggests an explanation for the greater average level of adaptability in our sample from this part of Pennsylvania. Further evidence is lacking to substantiate fully the assumption which led to this analysis. Nevertheless, the implications of the fact that communities of the composite type, or the purely resi-

³ Cf. Supplement B, Note 13, p. 402.

⁴ See pp. 119-123.

TABLE 16

Distribution of Thirty-six Pennsylvania Communities by Community Character, Geographical Isolation, and Geographical Division

COMMUNITY TYPE	GEOGRAPHICAL DIVISION			Total
	East	Central	West	
ISOLATED	3	10	5	18
Rural	1	1	1	3
Industrial	2	1	1	4
Residential	—	—	—	—
Composite	—	8	3	11
SEMI-ISOLATED	4	7	3	8
Rural	1	—	1	2
Industrial	—	1	2	3
Residential	—	—	—	—
Composite	3	—	—	3
SUBURBAN	5	7	4	10
Rural	—	—	2	2
Industrial	1	1	1	3
Residential	4	—	1	5
Composite	—	—	—	—
Total	12	12	12	36

dential type, tend significantly to exceed others in adaptability, are far-reaching. In later chapters we shall explain certain correlates of adaptability in terms of these community classifications.

It seems that a strong argument is presented for reorganization of districts in terms of capacity for adaptation. Of our thirty-six communities, twenty-two were either rural, industrial, or suburban. They were all districts which were only part of a larger community and which evidently did not contain within them enough of the characteristics of social and economic life essential for effective local inducement of adaptation in the schools. The residential community is the only high-rating type of community which is not a composite community. This may be explained in part by the fact that one element of community life which has much to do with inducing educational change is the home-making and child-rearing function of human activity. It must be pointed out also that the

exclusively residential type of community tends to have much higher than average potential tax resources for educational purposes.

Urbanness

In addition to the "function" factor there is undoubtedly a relation between urbanness and adaptability. A special study of the diffusion of kindergartens verifies this hypothesis. Data on kindergarten diffusion for all Pennsylvania districts are available in reports of the Superintendent of Public Instruction. The urban characteristics of the diffusion of this adaptation are clearly indicated by the distribution of kindergartens by class of district. Although districts in Pennsylvania are classified according to size, the criterion is population rather than school enrollment. It must be remembered in this analysis that many fourth-class districts, even considerably less than 5,000 in population, are located close within the urban zone of influence of the larger districts. The status of diffusion of kindergarten classes in 1934-35 appears in Table 17.

TABLE 17

Distribution of Kindergarten Classes and Total Average Daily Attendance by Class of District, Pennsylvania, 1934-1935^a

CLASS OF DISTRICT	POPULATION RANGE	NUMBER OF KINDERGARTEN CLASSES	TOTAL AVERAGE DAILY ATTENDANCE, ELEMENTARY AND SECONDARY SCHOOLS (IN THOUSANDS)
First class	500,000 or more	286	333
Second class	30,000-500,000	100	230
Third class	5,000-30,000	51	555
Fourth class	Less than 5,000	36	664

^a From *Statistical Report of the Superintendent of Public Instruction, 1934-35*.

From Table 17 it may be seen that the number of kindergartens is distributed in reverse order to the total number of children attending school in the four classes of districts. An examination of the geographical distribution of fourth-class school districts with kindergartens was found to reveal that many such districts border

upon urban centers about which there has been a convergence of kindergarten diffusion. Including kindergartens conducted by state teachers colleges, there were only 116 in seventy-four school districts outside the seven large cities of Erie, Johnstown, Philadelphia, Pittsburgh, Reading, Scranton, and Wilkes-Barre.

Education and Community Types

All statistical measures of factors relating to adaptability were subjected to an analysis of covariance by community type⁵ for purposes of isolating the characteristics of these communities which particularly explain why they reveal noticeable differences in adaptability. This analysis, with measures explaining the effect of community type on adaptability, is summarized in Table 18.⁶ The first factor is size, as measured by average daily attendance. Here we see that the rural schools, which also are lowest in adaptability, are the smallest. Next comes the industrial, and then the residential. The composite type of community is the largest in terms of average daily attendance in its school system. We also may see that when this factor is accounted for in our analysis, differences in adaptability among community types, though marked, are not highly significant.

A view of the way in which the several measures reported in Table 18 explain the significance of community type for adaptability is to be had by examining the last two columns of the table, A and B. In column A are numerical notations which designate the degree of significance of variation of community type averages for the various measures. We see that the adaptability averages for the four types of communities present a highly significant variation. The size factor is shown to have a statistically significant variation of averages. As one examines the numbers in column A he can see the degree of association which each measure has with the community classifications.

An entirely different type of interpretation must be made for the

⁵ As in Table 15, *supra*, p. 115. For statistical treatment see Supplement B, Note 13, pp. 460 ff.

⁶ The definitions of these and other measures appear in Supplement B, pp. 467-471.

TABLE 18

Variations of Adaptability and Certain Highly Associated Factors, by Community Types, Thirty-six Pennsylvania School Systems

MEASURE	COMMUNITY TYPE				STATISTICAL SIGNIFICANCE	
	Rural Farm	Industrial	Residential	Composite	Of Averages of Measure ^a A	Of Adaptability—Effects of Measure Removed ^a B
No. of communities .	7	10	5	14	...	...
ADAPTABILITY	18.9	29.5	44.0	43.0	(1)	...
Size—average daily attendance	7.0	16.7	18.0	23.4	(2)	(3)
Total expenditure per pupil	\$102.0	\$117.3	\$154.2	\$120.8	(4)	(2)
Per cent current expenses of total	85.6	77.3	69.2	76.1	(4)	(2)
Teacher experimentation index	52.3	46.2	67.2	59.8	(3)	(2)
Conformity of personnel index	12.7	35.0	52.6	32.7	(4)	(2)
Average age of teachers	29.3	30.7	31.2	33.6	(2)	(2)
Training of teachers above high school (yrs.)	2.8	3.8	3.9	3.9	(1)	(3)
Percentage teachers outside experience	51.6	37.0	69.4	64.2	(1)	(2)
Percentage educational background above Q ₃	12.9	15.7	38.2	31.8	(1)	(4)
Percentage population over 21	52.0	52.4	61.4	62.3	(1)	(4)
Percentage adult schooling beyond Grade 8	22.7	29.0	49.6	57.7	(1)	(4)
Percentage white collar occupations	10.6	21.9	31.2	34.1	(1)	(4)
Public relations index	52.7	48.3	55.4	58.9	(3)	(2)
Percentage teacher ideas outside community	5.6	12.9	15.2	13.3	(1)	(3)

^a Designations for degree of statistical significance are as before: (1) *Highly significant*; (2) *Statistically significant*; (3) *Marked but not significant*; (4) *Inconclusive*. Cf. Chapter III, pp. 57-58.

last column, B. Each item represents the degree of statistical significance of a set of four means, but in this case not means of the particular measure indicated, but *adaptability* means. To illustrate, in column B after the item *total expenditure per pupil* is the symbol (2), indicating statistical significance. This simply means that the four adaptability score averages of communities in the four categories would vary significantly if all communities had been of the *same total expenditure per pupil* or if, statistically, the effects on adaptability of total expenditure per pupil had been removed. We cannot say, therefore, that differences in expenditure for education explain the fact that adaptability averages vary from community type to community type, because even with proper allowances for expenditure community types would still differ in degree of adaptability. Similarly, we may make analyses of the other measures by referring to designations in column B of Table 18. But in all cases it is to be noted that a reduction has been made in the degree of significance of variation of adaptability among community types, for, as may be seen in the column A entry after "Adaptability" the adaptability means are classed as *highly significant*. In contrast to this, the highest rating appearing in column B is *statistically significant*. (All these entries in column B, it must be remembered, are adaptability ratings and therefore are to be compared with the first entry in column A and not with any other entry in that column.) All measures reported in Table 18, therefore, are in part responsible for some types of communities being more adaptable than others, for the degree of significance of adaptability averages when allowances are made for the effects of the several measures, is reduced in each case. All designations in column B are 2, 3, or 4.

Items which yield designations of inconclusive significance (4) are of particular interest. Let us look, for example, at the percentage of white collar occupations. According to column A of Table 18, there are *highly significant* differences in the percentage of white collar workers in the four types of communities. When the effects of this measure on adaptability are removed and statistical estimates of adaptability averages are made in terms of *what they would be were all communities the same as to percentage of white collar workers*, these averages may then be said to vary

inconclusively. We may therefore say that the association between adaptability and community type is in large part explainable by differences in the occupational characteristics of workers.

We have referred to measures of size and expenditure. Another factor which appears to produce the amount of variation found among these classifications of communities is the percentage which current expense is of total expenditure for education. The rural community is here found to devote on the average 86 per cent of its budget to current expenditure items. There is little capital outlay. There is relatively less bonded indebtedness in this type of community and consequently less debt service. The industrial and composite communities vary closely about an average of 77 per cent of total expenditure for current expenditure purposes. In rural communities current expenditures are even a larger proportion of total school costs, about 86 per cent. But in the residential community there has been greater expansion of those areas demanding expenditures other than current expenditures, and therefore current expenditure averages less than 70 per cent of total expenditures. At least this factor accounts in part for the significant variation in adaptability which we have noted among the community types. In matters dealing with the professional staff we see that marked community differences appear in the average years of training of teachers above the high school and the percentage of teachers who have had work beyond four years of college. On the professional side also, we find community differences in part explained by differences in the degree to which communities have teachers who are experimenting individually, to the extent to which teachers feel it important to accept social pressures and regulations in their personal and professional affairs, in the age of teachers, and in the extent to which they have had outside experience prior to being engaged in their present positions.

Apparently there is some hope of equalizing circumstances among different types of communities by equalizing some of the characteristics of teachers who staff these schools. But it is not so much in the area of the professional personnel that we are to find explanations of differences among these communities as in considerations dealing with the local culture pattern.

It is evident from the analyses which were given above that an important series of factors which condition the adaptability of the local community has to do with characteristics of community life, those things which are represented when communities are classified according to type. Beyond what the administrator might do toward inducing changes in his personnel, it appears that he might effectively devote his energies to keeping in contact with the public. We note that in the rural communities with small schools, public relations indices are high. The school tends to be the center of activity, and it is easy for these contacts to be kept up. In the industrial community, however, the average public relations index is low. We find a tendency, though not marked, for literacy and opportunities for contact between school and community to be a factor responsible for differences among community types. The extent to which outside ideas reach individual teachers is another factor which helps to explain differences among community types.

The rural community tends to live more within itself; next comes the industrial community, followed by the composite and the residential community. As with other matters, an equalization of these circumstances among communities would tend to reduce contrasts among them in extent of adaptability and perhaps would meet the level of all.

Implications

The analysis of adaptability in relation to the symbiotic grouping of communities contributes three hypotheses which have bearing on the nature of district reorganization, on the allocation of powers to existing districts, and on the selection of districts to initiate a new adaptation.

First, adaptability is conditioned not only by the impingement of certain culture and economic characteristics upon the schools but by the interplay of these culture characteristics among themselves.

Second, adaptability is conditioned not only by characteristics of individual communities but *by the characteristics of the "super community"* of which the school district is a part. That is to say, in addition to possessing other necessary conditions, the most adaptable communities will be those which are so located geographically as

to possess a high degree of interchange of economic and social life and interdependence with other communities.

Third, the geographical setting of a community with respect to other communities is related significantly to adaptability not only because of the internal richness of social environment, in addition to financial and other factors, but also because of *the nature of the part which the community plays* in the super community or the functions of social and economic life which various predominant elements of the community serve.

How Size Affects Adaptability

NO ASPECT of the structure of public education has received more attention in the last two decades than the question of the effective size of the school district. The consolidation of one-room rural school districts into township districts in a number of states in the North was followed by the movement to consolidate districts which had come to be parts of a city. While the consolidation of city districts was almost complete by the turn of the century, consolidation of rural districts moved slowly.¹ As it became the conscious objective of educational workers, they increased the size of the desired district and gave rather general acceptance to the idea that districts should be at least as large as counties. They sought districts large enough to employ school superintendents, provide health service, attendance service, transportation, and various other services which were next to impossible in the small district. All of the suggestions were put forward as means to make local initiative more effective. To a large degree they could be defended in terms of their potential contribution to adaptability.

Only recently have doubts arisen with respect to the effectiveness of the very large district, such as the school districts of the City of New York, Chicago, Philadelphia, Boston, and St. Louis. In our studies of adaptability we must be concerned with this question also. We must be interested in the optimum district, not just large districts. At the very least, in the case of the larger districts we must be concerned with methods of administration by which these districts may be saved from woodenness and inflexibility.

Following along the suggestions raised by the authors in their *Adaptability of Public School Systems*, Cillié and Ebey have recently carried on studies which throw light on some of the problems of administering a large city unit for adaptability. They indicated the tendency on the part of two of our large cities, at least, to stumble into the pitfall of the inspectorial central system. Cillié's investigations indicated factors which may be centralized

¹ Bateman, E. A., *Development of the County-Unit School District in Utah*, 1940.

with safety so far as adaptability is concerned, and factors which prosper best under community autonomy. By implication his results suggest the desirability for a much greater concern for the possible contributions of school community units within a large city system.² Ebey's results also pointed in this direction. Ebey's attention was particularly on the administration of a large city system for adaptability.³

An understanding of the minimum size of a district for effective operation of local initiative, and of the mechanisms by which the advantages of local initiative may be retained in large city systems, will provide better insurance to the people of a state that the school districts to which they delegate their powers shall in fact be capable of utilizing those powers to the best advantage. Size is only one factor in this problem, of course, as the discussion on the relation of the nature of the community to adaptability presented in the preceding chapters makes clear.

The present study throws some light on the relationship of size to adaptability, both from the study of nine adaptations in 344 districts and from the intensive field study of a sampling of thirty-six districts for which a more complete measure of current adaptability status is available.

While this chapter does not answer the question, "When, if at all, do districts become too large to favor adaptability under current methods of administration?" it gives positive evidence that within the range of communities up to 100,000 population, size is a contributing factor. Those interested in the introduction and diffusion of new adaptations, rather than in improving the structure of the school system, will find that size of district is an important point to be considered in the selection of those first few communities in which the adaptation is to be given its trial.

Size of School District and the Time of Introduction of Eight Adaptations

It will be recalled that one of our first tasks was the circularizing of 344 school districts in Pennsylvania with respect to the presence

² Cillie, F. S., *Centralization or Decentralization?* 1940.

³ Ebey, George W., *An Adaptability Study in the City of St. Louis, Missouri.* 1940.

or absence within them, and the time of introduction, of certain adaptations. The information obtained makes it possible for us to note the relationship of size⁴ to early introduction of eight⁵ of these adaptations and to compare the sizes of districts which have made the adaptations and districts which have not. This information, given in detail in Supplement B, Tables 74 to 82, is summarized in Table 19.

In Table 19 the whole span of diffusion is divided into eight periods. As we have noted earlier (Table 8), the first period, from the first introduction to the attainment of the 3 per cent level of all the districts, requires about five times as long as the other periods. The other periods (except the eighth), at least so far as we have comparable data, are approximately equal; that is, it takes a given adaptation about as long to go from the 3 per cent level to the 5 per cent level as it takes to go from the 5 per cent level to the 10 per cent level, and from the 10 per cent to the 20 per cent level, and so on. We also noted that the rate of diffusion varies for different adaptations, kindergartens being very slow and the other adaptations being comparatively rapid. For each of these periods we report the size of the median district, the smallest district and the largest district making the adaptation during the period. We have also introduced the numbers 1, 2, 3, and 4 to indicate the lowest fourth, the second fourth, the third fourth, and the highest fourth in size, respectively, for all 344 districts considered in making this distribution. The first entry (36²) means that the smallest district making the adaptation during the first period had 36 weighted elementary classroom units and that it falls in size in the second fourth of all 344 districts.

Figure 16 was drawn to facilitate comparison of the adaptors with the entire 344 districts (which include the adaptors). The vertical dimension of each of the eight quadrangles represents the

⁴ Size as measured in terms of number of weighted elementary classroom units (roughly the number of teachers employed). Total population is approximately 150 times the number of weighted elementary classroom units. For detailed method used see: Mort, Paul R., *State Support for Public Education*, pp. 121-122.

⁵ One of the nine adaptations, integrated curriculum, does not have a sufficiently long history of diffusion in Pennsylvania to make it useful in this aspect of the study.

TABLE 19

*Size of Pennsylvania Districts Introducing Various Adaptations During Specified Periods of Diffusion**

PERIOD OF DIFFUSION— DISTRICT RANK	ADAPTATION							
	Kin- dergar- tens	Reor- ganized High Schools	Spe- cial Classes	Home- making for Boys	Adult Edu- cation	Extra- Curric- ular Activi- ties	Ele- men- tary Final Exami- nation	Supple- men- tary Read- ing
First Period								
First 3%								
Low	36 ²	4 ¹	66 ³	24 ²	3 ¹	24 ²	60 ³	3 ¹
Median	110 ⁴	59 ³	402 ⁴	107 ⁴	114 ⁴	106 ⁴	140 ⁴	92 ⁴
High	904 ⁴	722 ⁴	904 ⁴	722 ⁴	904 ⁴	402 ⁴	510 ⁴	328 ⁴
Second Period								
4 and 5%								
Low	47 ²	10 ¹	58 ³	33 ²	12 ¹	54 ²	71 ³	1 ¹
Median	63 ³	184 ⁴	98 ⁴	114 ⁴	81 ³	83 ³	95 ⁴	96 ⁴
High	115 ⁴	424 ⁴	260 ⁴	402 ⁴	424 ⁴	98 ⁴	402 ⁴	722 ⁴
Third Period								
6 to 10%								
Low	12 ¹	24 ²	56 ³	10 ¹	16 ²	33 ²	10 ¹	3 ¹
Median	88 ⁴	75 ³	150 ⁴	85 ³	75 ³	90 ³	64 ³	60 ³
High	624 ⁴	641 ⁴	624 ⁴	624 ⁴	402 ⁴	611 ⁴	402 ⁴	317 ⁴
Fourth Period								
11 to 20%								
Low	8 ¹	10 ¹	30 ²	2 ¹	2 ¹	20 ²	5 ¹	1 ¹
Median	63 ³	86 ⁴	83 ³	78 ³	81 ³	75 ³	71 ³	71 ³
High	134 ⁴	624 ⁴	451 ⁴	202 ⁴	137 ⁴	641 ⁴	264 ⁴	510 ⁴
Fifth Period								
21 to 30%								
Low	—	6 ¹	24 ²	—	—	6 ¹	—	1 ¹
Median	—	54 ²	63 ³	—	—	70 ³	—	55 ³
High	—	233 ⁴	189 ⁴	—	—	424 ⁴	—	641 ⁴

* Size expressed in weighted elementary classroom units as of 1934. For all 344 districts the 90th percentile is 110; 75th percentile, 86; 50th percentile, 55; 25th percentile, 14; 10th percentile, 5.0.

¹ Lowest fourth in size. ² Second fourth in size. ³ Third fourth in size. ⁴ Highest fourth in size.

TABLE 19 (Continued)

PERIOD OF DIFFUSION— DISTRICT RANK	ADAPTATION							
	Kin- dergar- tens	Reor- ganized High Schools	Spe- cial Classes	Home- making for Boys	Adult Edu- cation	Extra- Curric- ular Activi- ties	Ele- men- tary Final Exami- nation	Supple- men- tary Read- ing
Sixth Period								
31 to 40%								
Low	—	7 ¹	—	—	—	7 ¹	—	8 ¹
Median	—	67 ³	—	—	—	52 ²	—	50 ²
High	—	904 ⁴	—	—	—	904 ⁴	—	202 ⁴
Seventh Period								
41 to 50%								
Low	—	—	—	—	—	4 ¹	—	4 ¹
Median	—	—	—	—	—	60 ³	—	50 ²
High	—	—	—	—	—	228 ⁴	—	611 ⁴
Eighth Period								
More than 50%								
Low	—	—	—	—	—	11 ¹	—	1 ¹
Median	—	—	—	—	—	58 ³	—	53 ²
High	—	—	—	—	—	202 ⁴	—	904 ⁴
Percentage of 344 districts mak- ing adaptation to date	13%	.44%	25%	11%	13%	57%	21%	71%

array of the 344 districts arranged in order from highest to lowest in size and divided as to size into quarters. The various percentile points are indicated on the scale at the left. The equivalent size scale is given at the right. The broken lines connect the points indicating the largest, median, and smallest adapting district in each period.

By observing the heavy broken line (the medians) we can see that there is a tendency for the early adaptors to be drawn from the large end of the scale. In the first period all are drawn from the top quarter in size except in the case of reorganized high schools. In five out of the eight cases the median adapting district

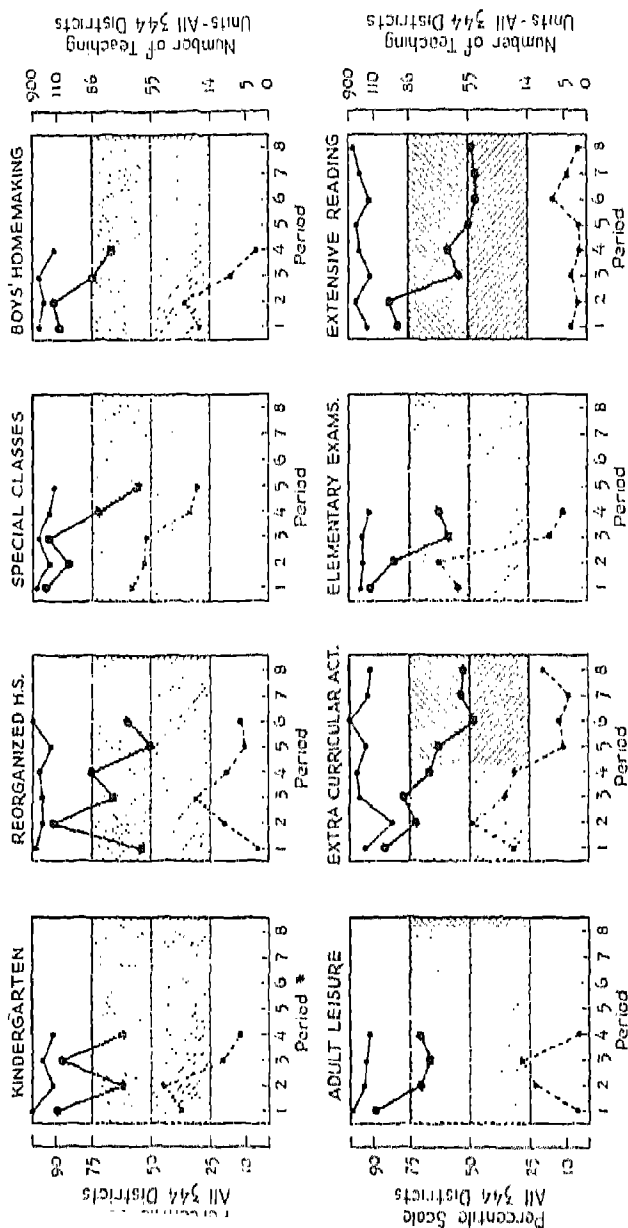


Figure 16. The Relation of Size of District to Time of Adaptation of Eight Adaptations

was in the top 10 per cent of all districts in size. That early introduction is not limited to large districts is indicated by the fact that in three out of the eight cases the smallest adapting district was drawn from the lowest quarter of the entire distribution—in fact, from the lowest tenth. The smallest district was drawn from the top half of the 344 districts in only two out of the eight cases.

As we move into the second period we find that the median adapting district was in every case above the average of the 344 districts, but instead of seven out of eight being in the top fourth, we have five out of eight. In the third period in only three of eight cases were the median adapting districts in the top quartile of the entire distribution but they were still all above average. In the fourth period only one out of eight medians was in the upper fourth, but all were above average. In the fifth and later periods we begin to find the median district being drawn from the lower half of the 344 districts. This of course must eventually occur as a matter of statistics if the large districts are selected first.

Four of our adaptations have not yet reached the fifth period. We can, however, compare all of our adaptations with respect to the first four periods. The highest adapting districts tell the same story as the median adapting districts. From the standpoint of the lowest district, we find that in no instance in these first four periods does it fall in the lowest quarter of all districts in the case of the special class and extracurricular activities adaptations. One additional observation may well be made. It will be noted that in every instance but one the largest adapting district was well above the 90th percentile point on the scale for all districts.

We may therefore conclude that within the size range studied, communities with more than 86 teaching units are better bets as first introducers than smaller ones, and that communities well above 55 teaching units are more responsive than smaller communities, at least during diffusion through the first 30 per cent of the districts.

Size and Adaptability in Thirty-Six Districts

The application of the 183-item adaptability measuring scale to a smaller sampling of districts in 1938 also made it possible to study the relation of size to current adaptability.

As may be seen in Table 20, there is a distinct and significant difference in the current level of adaptability between large and small schools. By analysis of the relation of various factors it was possible to detect those which are most likely explanations of why adaptability tends to take place to a greater extent in the larger community than in the smaller community.

In Table 20 are shown also averages in large and small districts on two individual measures and two composite measures which were found to be most significant in explaining the operation of size. It must be pointed out, in examining this table, that our arrangement of the thirty-six communities is such that they are comparable in wealth and tax leeway. There is, however, one very noticeable difference financially; this is in local tax rates for purposes other than education. The eighteen large school districts on the average levy 13.9 mills on property for purposes other than education; the small districts levy the significantly lower rate of 8.7 mills.

TABLE 20

Averages of Adaptability and Several Related Factors in Large and Small School Districts

MEASURE	AVERAGES		STATISTICAL SIGNIFICANCE	
	18 Large Districts	18 Small Districts	Of Averages of Measure ^a	Of Adaptability- Effects of Meas- ure Removed ^a
Adaptability			(1)	
1937 tax rate other than education (mills)	13.9	8.7	(1)	(2)
Average years' training of teachers above high school	4.0	3.4	(1)	(2)
Composite index of com- munity measures	6.3	4.7	(1)	(4)
Composite index of admin- istrative measures	6.2	4.8	(1)	(4)

^a Designations for degree of statistical significance are as follows: (1) *Highly significant*. (2) *Statistically significant*. (3) *Marked but not significant*, (4) *Inconclusive*. Cf. Chapter III, pp. 57-58.

There are some other factors which differentiate the large and small schools. Professionally, there is a significantly higher level of training of teachers in the larger school systems. In some systems the average number of years of training above high school was slightly more than three. In large systems this figure was slightly less than four. Other measures of professional personnel were found to be reflected in the size-adaptability relationship but to a smaller degree.

In most of our measures of the community, with the exception of degree of community opposition, stability of population, and mobility of population, we found significant differences between large and small communities. On a ten-point scale, the mean of which is 5.0 for all communities, we expressed a combined index of measures of community life and we found large schools rating, on the average, 6.3, and small schools rating, on the average, 4.7. This tendency is shown in Table 20.

Another significant educational factor differentiating large from small districts is the character of administrative service, as measured by the *Guide for Self-Appraisal of School Systems*. In large schools there are greater opportunities for providing adequate business management, adequate professional leadership, and many of those adaptability-inducing facilities made possible through administration.

The degree of isolation, professionally, of communities is another matter which distinguishes the large school from the small. In large schools a greater proportion of the teachers report ideas, the sources of which are ascribable to outside influences. When large and small schools are compared on several measures of administrative factors in a composite index, administrative leadership, as a whole, as indicated in Table 20 shows up as an important explanation of low adaptability in small schools.

When these various measures were analyzed along with adaptability in large and small schools it was found that the advantage which the large school has over the small school may be attributed to factors which we list briefly as follows:

1. More complete governmental services, as indicated by higher tax rates for purposes other than education in large communities.

2. Professional personnel more capable of influencing adaptation, as noted particularly by a larger degree of experimentation, a larger number of years of professional training, and a higher average age.

3. Less dependence upon administrative leadership for sources of ideas of teachers, coupled with a superior level of administrative leadership.

4. A smaller degree of provincialism and self-sufficiency in larger schools, as represented by measures of the degree to which teachers get ideas outside the community.

5. In larger communities a more complex and more stimulating social life, as revealed by significantly higher educational background of the children, socio-economic status of families, attitudes toward newer practices in education by citizens, ratio of children to adults, percentage of adults with high school and college education, and measures of occupational characteristics.

The Urbanness Factor

The size of the school district may have two quite distinct bearings upon circumstances related to adaptability. One aspect, the geographical, was treated in Chapter III. The situation which led the investigators first to give attention to the effects of size upon adaptability is quite independent of the location of school districts. This consideration deals with the observation made in early field work that a large school, a school located in an urban center in which are to be found many conducive factors, may make innovations, such as adding a special class or introducing a course in aeronautics, without apparent increases in the total budget. Actual amounts of cost increase for such projects in a large city produce proportionately less effect upon the total budget of the district than in a small school system. Moreover, in the larger administrative unit there is greater opportunity for redistributing class groups to effect certain compensating economies which make adjustments possible. In a large city school system there will be, for example, enough high school students requiring highly specialized trade courses to warrant the introduction of special classes or even special schools for such instruction. Furthermore, the large school, with its

large professional staff, is in a better position, through specialization, to find and develop a greater variety and diversity of creative talents and interests among teachers.

This is not possible in the small school system. In communities visited in the field work, we found the development of special classes retarded, for example, because the incidence of children with mental handicaps in a total attendance of less than 300 to 500 school children is so slight that special class instruction for these children would require an unusually small class size. This not only would mean an increased unit instructional cost, but would necessitate difficult readjustments of space in a small school building. Accordingly the need must be met in some other way.

There is still another contribution of size which has come to light in the present investigation. Not only does the large school system stand in a better position to make adaptations because of the greater administrative facility with which it can be organized, but the characteristics of the large school community itself are usually conducive to adaptability. This fact alone accounts for the presence of social factors not to be found in rural areas. There is, however, no necessary identity between the factor "urbanness" and the factor "size." Thus the many residential school districts on the outskirts of Philadelphia are relatively small but nevertheless urban.

SIZE AND URBANNESS

Aside from what might be proposed as the optimum size of the administrative unit, under present conditions in Pennsylvania there is some association between the size of district and the urbanness of the community, but not to the degree that might be expected. A distribution of thirty-six communities participating in our field work shows the extent of this association. This distribution is summarized in Table 21.

The data in Table 21 show that the belief that urbanness is to be determined by size is very largely a misconception. Eleven of the eighteen large districts were classified as isolated. This means that they were geographically far enough from larger centers to possess their own centers of social and economic interest. Only seven of our small communities were isolated geographically to this degree.

TABLE 21

Distribution of Thirty-six Select Communities by Size, Class, and Geographical Isolation Groupings^a

GEOGRAPHICAL ISOLATION GROUPING	SIZE CLASS		
	Large	Small	Total
Isolated	11	7	18
Semi-isolated	5	3	8
Suburban	2	8	10
Total	18	18	36

^a Cf. Chapter V, pp. 112-116, for explanation of these groupings.

Even the large school system may be only a part of a larger metropolitan area. Many of the cities in the eastern part of Pennsylvania are semi-isolated in the sense of forming integrally an essential part of the economic life either of Philadelphia or of larger cities in the Anthracite Region. Among our eighteen large communities five were classed as semi-isolated. Two of them were actually suburban. If one were to consider the large school districts as urban by virtue of their own size (and none of these large districts were consolidated rural districts), one would need to bear in mind that seven of our large districts tend to be satellites of larger metropolitan centers.

At least eight of our small communities possess this same characteristic. The small suburban communities, for the most part, could not be considered rural. Three of them, in fact, were residential, three of them were suburban industrial communities, and only two were rural in nature.

It is apparent from this analysis that caution should be exercised against assuming too close relationship between size and degree of urbanness of school districts.

Because of the large number of small districts in Pennsylvania which are not rural districts or districts geographically isolated from large city communities, some small districts must be classified as urban even though they would not satisfy the common definition of

this term, particularly as used in the Federal Census.⁶ Consequently, the observation of influences of urbanness upon adaptability would be quite different from that derived from Tables 19 and 20, which treat the effects of size upon adaptability. Indeed, many of the more adaptable small communities are of the suburban or semi-isolated variety.

Summary and Implications

The findings of this chapter apply to school districts of less than 100,000 population.

SIZE AND TIME OF MAKING ADAPTATIONS

(1) The early adaptors are relatively large in the case of all the eight adaptations studied. In all cases the median adapting district was drawn from the upper fourth of the whole distribution as to size; in five out of the eight, from the top 10 per cent. Very small districts, while the exception, appear as early adaptors in three out of the eight cases. In only two cases did a district of less than average size (55 classroom units) fail to appear as an early introducer.

(2) While there is the expected regression toward the average, adaptation remains a large-district phenomenon through the first four periods (diffusion up to 20 per cent of saturation).

(3) Distribution of adaptors becomes fairly representative of the total distribution during the fifth and sixth periods (diffusion between 30 per cent and 40 per cent of saturation).

(4) As a whole we may say that within the size range studied (up to approximately 1,000 classroom units), school districts with more than 86 classroom units are the most likely first introducers and school districts with more than 55 classroom units are considerably more responsive than smaller ones, at least during the first 30 per cent of diffusion.

SIZE AND CURRENT ADAPTABILITY

(1) Large communities score significantly higher on the general measure of adaptability.

⁶ For census purposes, a municipal subdivision of less than 2,500 population is classed as rural.

(2) The large districts have higher tax rates for non-educational purposes, better-trained teachers, a higher combined index of community life, better administrative services and leadership, and more ideas from the outside reported by teachers.

(3) There is no necessary identity between the "urbanness" factor and the size factor as studied. The explanation of the influence of size lies elsewhere. The implications are that large districts, regardless of urbanness, favor adaptability.

SIZE AND CULTURAL PATTERN

From the analysis presented in this and the preceding two chapters it becomes apparent that the factor which as much as any other explains the effect of size on adaptability is the clustering of elements which make up the cultural pattern. The cultural characteristics related to adaptability discussed in Chapters IV and V can most quickly be influenced in a school system by the organization of the district itself. The larger the district, the greater the variety of such factors. This tendency becomes particularly important when we find that in a number of these factors it is not the average level of the community that counts so much as the presence in the community of persons ranking high in social intelligence and responsibility.

Clearly, then, the problem of reorganization is not simply a problem of size but a problem of school district planning which will result in the desirable cultural elements within the district.

CHAPTER VII

How Tax Leeway and Wealth Affect Adaptability

WEALTHY school districts play an important part in the inventing of adaptations and in experimentation with them. When a particular movement in education is studied, it is generally found that a wealthy district or a large district, or a district with both of these characteristics, has been a pioneer. When one notes the effect of the reward-for-effort type of state aid on the diffusion of adaptations, he again sees that it is the comparatively able communities which have responded to the stimulation thus provided. This was brought out clearly by the Educational Finance Inquiry in the study of special aids in New York State, and has been verified since by other investigations, particularly the New Jersey and Maine School Finance Surveys.

It is understandable, then, that in the field work of this study we were particularly interested in tracing the effect of wealth on the nine adaptations in Pennsylvania and also in appraising wealth as a factor in the intensive study made of the thirty-six communities. We have already suggested certain hypotheses with respect to wealth in our earlier monograph. With respect to the tax base it has been suggested that:

The tax base used by local school boards should be sufficiently relieved by other taxes and sufficiently shored up, where necessary, by state aid, so that the absolute burden upon it shall not be unreasonable and the relative burden upon it shall be no greater than that carried by other tax bases when all taxation for local, state, and national purposes is considered (freedom to tax).

Able communities giving more than average support to public schools provide a rich ground for the invention and introduction of adaptation. Communities should therefore be given freedom to exceed the state minimum program.¹

A study of the nine adaptations in 344 communities provides material for a partial test of this hypothesis. A study of thirty-six com-

¹ Paul R. Mort, and Francis G. Cornell, *Adaptability of Public School Systems*, p. 101.

munities makes possible an analysis of tax leeway which will help to show how the financial resource factors affect adaptability.

Relation of Wealth and Adaptability

In the study of 344 communities we took advantage of the availability of data on full valuation per classroom unit² in each district for the year 1927 as developed by the Pennsylvania Commission to Study the Distribution of State Subsidies to School Districts. This gave us a wealth figure for a point somewhere near the middle of the time span through which most of the adaptations under consideration had been in the process of diffusion. In using this wealth figure we are assuming that it is more or less typical of the wealth of most districts throughout the period studied. The chances are that it is more representative of the wealth of a decade prior to 1927 than of the wealth of a decade later. We find, however, that despite upsetting effects of the depression there is a fairly high correlation between 1927 and 1937 wealth per pupil ($r = .913$).³

KNOTT'S PRELIMINARY TEST OF WEALTH AND ADAPTABILITY

In a study preliminary to his analysis of New York State communities, Knott ran a test of the relationship of adaptability as measured in terms of the nine adaptations studied in Pennsylvania and the wealth as of 1927 for 277 of our districts. He applied two measures of adaptability: (1) the number of the twelve adaptations actually made in the community; (2) the time lag of the adaptations, measured indirectly by taking the average year of all introductions. He classified the districts in terms of the ability per pupil in 1927, and divided his resulting scale into thirteen intervals. He describes the result as follows:

The tabulation of the number of adaptations on the ability axis shows: (*a*) that the five lower intervals evidenced an irregular pattern of average number of adaptations, and (*b*) that the eight upper intervals evidenced a regular pattern of increases per interval in the average number of adaptations.

The average for the 277 districts which he studied was 3.7 adapta-

² See Chapter VI, footnote on p. 127, for method of computing classroom units. ³ Based on data for the 36 districts sampled.

tions. In his highest ability group the average number was 5.4. In his lowest ability group the average number was 2.4. The average for the districts in the five lowest intervals was 2.5.

In his study of the time lag a similar positive relationship was found. The districts with the greatest ability not only introduced more adaptations, but took them on at an earlier date, on the average, than the districts of less ability. Knott's efforts were preliminary to further studies of the wealth of districts. His findings were indications of trends only, however, dealing with averages and not, therefore, revealing the extent and nature of such relationships.

WEALTH AS RELATED TO THE INTRODUCTION AND DIFFUSION OF EIGHT ADAPTATIONS IN 344 DISTRICTS

An extension of Knott's analysis appears in Table 22 and Figure 17, showing the wealth of districts introducing the eight adaptations at various stages of the diffusion process. It will be noted that whatever the percentage of districts that have made the adaptation, the average wealth of these districts is greater than the average wealth of those that have not made it. Where the percentage of districts that have made the adaptation is small, the difference between those that have and those that have not tends to be greater. The median wealth of districts in the first 3 per cent of adaptors was, in five cases out of eight, in the top quarter of all districts as to wealth and in the other three cases above average. The median wealth of those that made the adaptation in the second period was again above average in every instance, but in only two of the eight instances was it in the top quarter. The same holds true for the third and fourth periods.

When more than 20 per cent of all districts have been reached by the adaptation we begin to find instances where the wealth of the median district undertaking the adaptation in a given period is below the average of the 344 districts. In the fifth period the median wealth of one out of four adaptations was in the second quarter, in the sixth period one out of three, and in the seventh and eighth periods one out of two in each instance.

There are instances all the way, however, of districts of low wealth making the adaptation rather early. For example, the poorest com-

TABLE 22

*Wealth of Pennsylvania Districts Introducing Various Adaptations During Specified Periods of Diffusion**

PERIOD OF DIFFUSION— DISTRICT RANK	ADAPTATION							
	Kin- dergar- tens	Reor- ganized High Schools	Spe- cial Classes	Home- making for Boys	Adult Edu- cation	Extra- curric- ular Activi- ties	Ele- men- tary Final Exami- nation	Supple- men- tary Read- ing
First Period								
First 3%								
Low	138 ²	67 ¹	138 ²	97 ²	76 ¹	97 ²	135 ²	92 ²
Median	279 ⁴	186 ³	284 ⁴	287 ⁴	233 ⁴	183 ³	243 ⁴	167 ³
High	466 ⁴	637 ⁴	637 ⁴	463 ⁴	466 ⁴	459 ⁴	388 ⁴	787 ⁴
Second Period								
4 and 5%								
Low	143 ²	71 ¹	109 ²	119 ²	88 ¹	139 ²	83 ²	28 ¹
Median	253 ⁴	172 ³	193 ³	239 ⁴	164 ³	173 ³	162 ³	195 ³
High	637 ⁴	277 ⁴	419 ⁴	787 ⁴	637 ⁴	595 ⁴	748 ⁴	459 ⁴
Third Period								
6 to 10%								
Low	152 ³	56 ¹	106 ²	28 ¹	33 ¹	34 ¹	133 ²	34 ¹
Median	321 ⁴	188 ³	192 ³	182 ³	255 ⁴	171 ³	165 ³	136 ³
High	1,438 ⁴	642 ⁴	595 ⁴	466 ⁴	640 ⁴	388 ⁴	718 ⁴	718 ⁴
Fourth Period								
11 to 20%								
Low	106 ²	37 ¹	37 ¹	68 ¹	37 ¹	29 ¹	34 ¹	38 ¹
Median	234 ⁴	242 ⁴	189 ³	188 ³	153 ³	177 ³	183 ³	183 ³
High	554 ⁴	787 ⁴	846 ⁴	311 ⁴	554 ⁴	748 ⁴	640 ⁴	748 ⁴
Fifth Period								
21 to 30%								
Low	—	69 ¹	34 ¹	—	—	41 ¹	—	34 ¹
Median	—	175 ³	145 ³	—	—	176 ³	—	157 ³
High	—	1,438 ⁴	673 ⁴	—	—	787 ⁴	—	630 ⁴

* Full valuation per weighted elementary classroom unit for 1927. For all 344 districts the 90th percentile is 322; 75th percentile, 221; 50th percentile, 147; 25th percentile, 89; 10th percentile, 58. For complete data see Tables 74 to 81.

¹Lowest fourth in wealth per teaching unit. ²Second fourth in wealth per teaching unit. ³Third fourth in wealth per teaching unit. ⁴Highest fourth in wealth per teaching unit.

TABLE 22 (Continued)

PERIOD OF DIFFUSION— DISTRICT RANK	ADAPTATION							
	Kin- dergar- tens	Reor- ganized High Schools	Spe- cial Classes	Home- making for Boys	Adult Edu- cation	Extra- curric- ular Activi- ties	Ele- men- tary Final Exami- nation	Supple- men- tary Read- ing
Sixth Period								
31 to 40%								
Low	—	28 ¹	—	—	—	41 ¹	—	41 ¹
Median	—	146 ²	—	—	—	182 ³	—	185 ³
High	—	384 ⁴	—	—	—	846 ⁴	—	461 ⁴
Seventh Period								
41 to 50%								
Low	—	—	—	—	—	34 ¹	—	29 ¹
Median	—	—	—	—	—	141 ²	—	144 ³
High	—	—	—	—	—	1,438 ⁴	—	640 ⁴
Eighth Period								
More than 50%								
Low	—	—	—	—	—	28 ¹	—	14 ¹
Median	—	—	—	—	—	148 ³	—	142 ²
High	—	—	—	—	—	630 ⁴	—	846 ⁴
Percentage of 344 districts making adap- tation to date	13%	44%	25%	11%	13%	57%	21%	71%
Average wealth of those hav- ing adaptation	242	157	166	172	138	141	178	133
Average wealth of those not having adap- tation	118	108	117	122	125	110	119	111

munity that reorganized its high schools in the first period was from the lowest quarter of the distribution of all districts. This was true also of adult education. In the other six adaptations the lowest case was in the second quarter. In the second period we find three lowest adaptations in the lowest quarter and the other five in the

second quarter. In the third period we find five lowest adaptations in the lowest quarter.

At every step of every adaptation the wealthiest community to make the adaptation was in the top quarter of all districts. It is quite clear from this table that wealth is an important factor in the first stages and a continuing, though less important, factor as the diffusion process unfolds. It is clear also that it seems to be a more important factor for some adaptations than for others. The median adapting community in each stage in the case of kindergartens is in the top quarter of the 344 communities, whereas the median adapting community in each stage for extracurricular activities and supplementary reading never rises above the third quarter. Again, the kindergarten seems to be the only one of the eight adaptations which remains typically a rich community adaptation through the first four periods.

Shifting our attention to the entire distribution of 344 districts, it is of interest that no lowest quarter community has as yet introduced kindergartens. In the case of reorganized high schools and adult education, lowest quarter communities appeared in the first period. In the case of supplementary reading a first quarter community appeared in the second period. In the case of extracurricular activities and homemaking for boys, first quarter communities came into the picture in the third period. First quarter communities did not come into the picture in the case of special classes until the fourth period.

Clearly wealth is an item to be considered in selecting communities for experimenting with a new adaptation, but persons interested in making an adaptation in a given poor community need not be discouraged on account of community poverty alone.

This analysis should do much to clear up misconceptions of the effects of wealth of districts on the nature of educational service. Studies dealing with averages have tended to overemphasize the importance of the influence of the wealth of districts. On the other hand, other investigations have exaggerated the overlap of wealth and certain economic characteristics of communities, have pointed out instances of poor districts which have made the grade and wealthy districts which have floundered in lethargy and inefficiency,

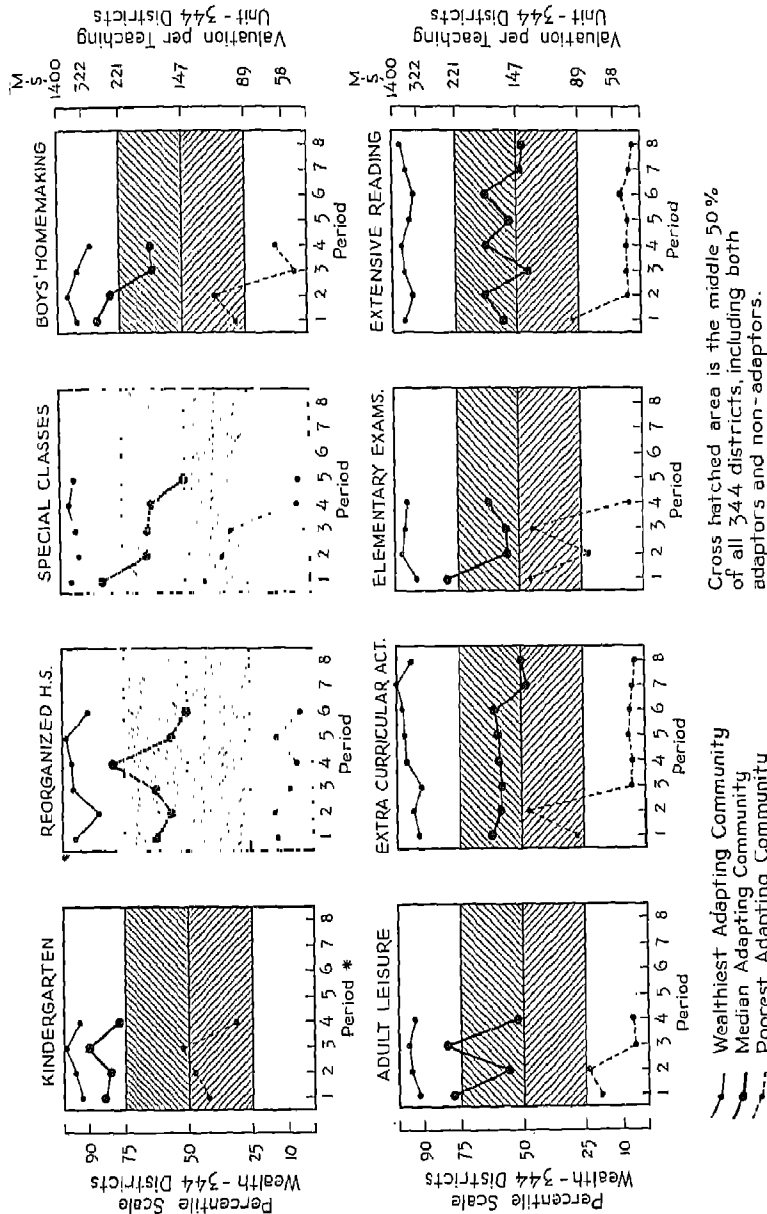


Figure 17. The Relation of Wealth to Time of Adaptation of Eight Adaptations

and have urged the abandonment of programs directed toward the equalization of wealth differences. Neither of these extreme attacks has been fair to the problem. As we have seen here, wealth is an important factor in adaptability, although perhaps we should view it as a "necessary" condition during early periods of development of an adaptation and not as a "sufficient" condition for all aspects of educational service. Additional evidence on the nature and extent of influence of wealth on adaptability supporting this conclusion appears below.

WEALTH AND ADAPTABILITY IN 36 COMMUNITIES

In order to observe changes in the effects of certain economic factors upon adaptability, data covering several years were assembled from each school district in the small sample of thirty-six communities. As has already been stated, the wealth used in the above studies was for the year 1927. Similar estimates of wealth per classroom unit were derived from original data for the years 1930 and 1937. These wealth measures were compared with our 183-item measure of adaptability for the year 1937. The highest correlation was observed for the year during which adaptability was measured, the year 1937. This correlation was only .300. The correlation between 1937 adaptability and 1930 wealth was .283, and between 1937 adaptability and 1927 wealth the very insignificant amount of .108.

The direct effect of wealth, it is to be observed, is not highly significant, and any idea that the financial condition of a community, measured in terms of taxable wealth per teaching unit, at a given date predicts adaptability is not supported by these data. (This point is treated later in this chapter with a different measure of financial resources.) Where great changes in the economic condition of a community produce changes in the financial support of schools in that community either by increasing funds for education or by decreasing them, changes are evidently rapid enough to offset any sustaining effects of the economic capacity of the community. In part, this might indicate that although processes of change in many communities with reference to individual adaptations run through a course of many months or many years, the fluctuations in eco-

conomic fortunes of the community, in so far as they have an influence upon the adaptability of the schools, produce effects of rather short duration. Among our communities there are illustrations of communities which have struck sudden riches through the development of new industries and have been able, within a relatively short period of time, to make very rapid expansion in the educational program; and there are illustrations of communities which, as early as 1926, had been encountering problems of supporting education through a rapidly shrinking local tax base, resulting from circumstances of economic depletion. In the latter group, abandonment and the discontinuance of the few feeble evidences of progress are often much more rapid than the introduction of adaptations in communities on the upgrade.

CONCLUSIONS WITH RESPECT TO WEALTH AND ADAPTABILITY

It is clear from these studies that communities of greater taxable valuation per classroom unit or per pupil are much more likely to be early introducers of new adaptations, but that no wealth group is entirely ruled out. It is clear also that these communities make more adaptations and make them sooner than those with limited resources. Finally, it is clear that at least during the period of great economic stress, taxable valuation per classroom unit or per pupil is not useful in predicting adaptability a decade in advance and is not even significantly correlated with a thoroughgoing measure of adaptability.

Tax Leeway and Adaptability

It is clear that under our system of local initiative adaptations diffuse more readily through the abler districts of the state. They proceed haltingly in the districts of less than average local financial ability. Under our system of local initiative, adaptations must first be recognized by the professional group in the community, must be accepted more or less by the community itself, and if they require additional expenditure, must find a sufficient responsiveness in the community to warrant the necessary additional taxation.

It seems reasonable to expect that able communities are more likely than poor communities to have a professional staff capable of

realizing the need for adaptations and of bringing them to the attention of the community. It also seems reasonable to expect that financial ability would be associated with cultural factors which would make for community responsiveness to professional leadership or public recognition of needed adaptations which the professional staff might overlook. These factors will be examined in due course.

The question we have to examine here is whether, over and beyond these factors, the burden of taxation itself has a relationship to adaptability. It was noted in the preceding section that taxable valuation per classroom unit or per pupil is not closely related to our adaptability measure. This seems to be contrary to general observations which led to the original hypothesis that wealth was associated with adaptability. If we recall that our thirty-six communities covered the whole range of ability and that many of them did not have sufficient other favorable factors to bring about adaptability, we see a partial explanation for our failure to get a higher relationship. For the wealth factor must be considered a *conditioning* factor and not the *sine qua non* of adaptability. When we realize also that the poor districts in the state have been aided by emergency aid during the depression period covered in our analysis, we see another possible disturbing element. Poor districts which tended to pay the minimum salaries or little more were given aid to make possible minimum salaries. Able districts paying in excess of the minimum salaries had greater opportunity to reduce salaries and perhaps also a greater reason.

But part of the difficulty may be in the measure itself. If we ask ourselves how wealth could be an indicator of adaptability, we can see that in part it might be due to other factors which are related to wealth and may influence adaptability; but we can see also that wealth itself might result in the creation of certain means to adaptation. In the first group we might have the cultural level of the community associated with but not entirely a resultant of wealth. In the latter case we might have higher expenditures for schools which in turn might result in better-trained teachers, better working conditions, and so on.

In this section we have examined various measurable factors to

discover those which are related to wealth. In addition we have sought to utilize a measure of resources which appears to be more specifically related to those factors in the measure used above which may be thought of as resultants of wealth. This is the measure which we have called tax leeway.

TAX LEEWAY AS A MEASURE OF FINANCIAL RESOURCES

Let us first attack the question of the tax leeway measure itself. Let us suppose that two communities having equally able professional staffs, equal expenditures for education, and roughly comparable community circumstances, vary in the tax burden actually carried on property, the tax base which supports local initiative. Would the one with the heavier current tax burden for all purposes be likely to fall short in adaptability? At first thought this would seem to be an impossible situation. If the two districts are alike in expenditure, cultural background, teaching staff, and so forth, are they likely to be different in their ability? Considering the fact that the correlations between ability and these other factors are not perfect, such situations could exist. More important, however, it is just such a problem that we face in increasing state aid. Communities with a given educational program and a given tax rate, receiving a sizable amount of additional state aid and using this aid to reduce their tax rate, would find themselves with the same conditions as they had before in all matters other than the burden of their property tax.⁴

This may readily be seen when we compare the tax burden of school districts in New York State before and after the increase of state aid from \$40,000,000 to \$120,000,000 a year. This money was raised from taxes other than the property tax. Approximately half of it was reflected in tax reduction. To what degree may we expect such a tax reduction itself to result in greater adaptability? It is the tax reduction criterion on which must usually be made the decision

⁴ The amount of variation in the burden on the property tax would of course in some degree be dependent upon the tax utilized in alimentering the fund from which the new state aid is drawn. Presumably a shift of the property tax burden to corporate income tax would be a greater factor in increasing tax leeway than a shift to the sales tax. Conceivably it would be possible to reduce the property tax by increases in state aid from such sources as would leave the tax leeway unchanged or actually reduced.

whether to use state aid for purposes other than equalization of burden of a given program. If we desire merely to equalize the burden of a certain program, it can be done without giving aid to the ablest districts and by giving a minimum of aid to the comparatively able districts. If state aid is to be given to the able districts as well as to the poor districts, it is justified in most states solely in terms of its contribution to adaptability.

The same question arises when we consider the problem of federal aid. If the Federal Government were to embark upon a program of guaranteeing a foundation program of education in all states, should it do this simply by equalizing the burden among the states with the result that poor states get considerable aid and the ablest states get no aid, or should all states get aid as a means of speeding up the tax reform necessary to shift burden from the property tax to other taxes? To equalize a defensible foundation program in the United States would require a billion dollars a year. This would bring no aid at all to the ablest states. If the question of tax relief were to come into the picture, however, the same educational program could carry as much as a billion dollars more collected by taxes other than the property tax, to be used for reducing the property tax burden in all the states.⁵

Just how this question of tax leeway is to be understood depends upon our conception of how it would operate. We have already noted that when an adaptation is made in a community it depends upon certain professional and community factors. With respect to the latter, the community must be sufficiently aroused to the need for the adaptation to respond to the need for additional taxation if the adaptation requires additional money. The same would of course hold with respect to experimentation aimed to develop entirely new adaptations, the need for which may have emerged in the community itself.

It would seem reasonable to expect a heavily taxed community to respond less readily to the demands than a community less heavily taxed. In other words, as we move up from a given total tax on property to higher taxes, we can think of the resistance increasing.

⁵ See Mort, Paul R., *Federal Support for Public Education*. Bureau of Publication, Teachers College, Columbia University, 1936.

To move from an overall tax of 20 mills to 21 mills may not require nearly as much public interest as to move from 40 mills to 41 mills. Again, there may be considerable difference between the situation involved in moving from 20 to 21 mills and the situation involved in moving from 40 to 41 mills, while there may be no distinguishable difference between the situation involved in moving from 10 to 11 mills and the situation involved in moving from 20 to 21 mills.

Obviously this question of tax leeway is one which will have to be dealt with at different levels. We cannot think in terms of a pre-conceived measure scaled in equal units. One mill added to the 40 mill level may be impossible to attain; one mill added to 5 mills may be relatively easy to attain. We must therefore approach the application of the tax leeway measure with the realization that a unit on one part of our measuring stick in all probability will not be equal to a unit on another part of it.

The question is not solely one of burden actually carried. There is also involved the question of how much a given increase in tax burden would yield in funds to apply to the educational program. In a community with a property valuation of \$10,000 per classroom unit, a one-mill increase in taxes would yield only \$10 per classroom. This might have some significance for additional supplies, books, or equipment of general use to a school. On the other hand, a community having a valuation of \$300,000 per classroom unit could raise an additional \$300 per classroom on a one-mill increase in taxes. This could make a significant difference in the type of teacher employed or in the number of teachers employed. Obviously, then, tax leeway for a district with \$10,000 valuation per classroom unit is not the same as tax leeway for a district with \$300,000 per classroom unit, *even if their present tax rate for all purposes is the same*. Tax leeway varies directly with valuation and inversely with present burden. To express this Knott used the formula

$$L = (50 - T) W$$

in which L is tax leeway, 50 is a millage arbitrarily chosen as a maximum admissible tax rate, T the present total tax rate on property for all purposes, and W the wealth per pupil or classroom unit. Assuming that 50 mills is the ceiling for the tax rate, this formula

gives the amount of money that could conceivably be raised per classroom or pupil unit from the unused tax rate. A community with a 10-mill tax overall on \$200,000 valuation would have, according to this formula, the same tax leeway as a community having 30 mills at present and a valuation of \$400,000. Both of these, according to the formula, would have a tax leeway of \$8,000 per teaching unit. Let us approach both of these communities with an adaptation which costs \$100 per teaching unit. The one community, with a present tax rate of 10 mills, would have to increase its levy from 10 to 10.5 mills; the other community, with a present tax rate of 30 mills, would have to increase its tax rate from 30 mills to 30.25 mills. To assume that the tax leeway in both of these communities is identical is much the same as assuming that an increase from 10 to 10.5 mills in the one case is of the same degree of difficulty as an increase from 30 to 30.25 mills in the other situation.

Of course such extreme cases seldom occur. Characteristically communities with great wealth have relatively low taxes and communities with little wealth have relatively high taxes. It would be much more realistic to expect the community now having a tax rate of 30 mills to have a valuation of \$200,000 and a community with a tax rate of 10 mills to have a valuation of \$400,000. This would give us, according to our formula, a tax leeway of \$4,000 and \$16,000 respectively. Under this more normal circumstance, to obtain \$100 the community with 30 mills would have to increase its taxes by .5 mills, while the community with 10 mills would have to increase its taxes by .25. This is equivalent to saying that in studying this problem we must study tax leeway by taking groups of communities that have different tax rates and somewhere near the same valuation, or communities with different valuations and somewhere near the same tax rates, rather than attempt to cover all the issues in a simple formula. Or, if we use a simple formula, we must develop it by empirical methods, basing it on the relationship of these factors with adaptability as actually observed.

Knott matched his communities of high and low tax leeway in terms of expenditure, eliminating the wide ranges in these elements. His results are therefore not subject to the criticism that would come if he had covered a wide range of wealth and tax rate. Seeking to

find the relationship between adaptability and tax leeway computed by the formula, he showed that in communities of relatively high wealth, matched with respect to expenditure and a number of other items, the high tax leeway community group expanded educational programs more rapidly during the period from 1926 to 1930 and resisted reduction harmful to the educational program more fully during the depression period from 1930 to 1935.^{5a}

In the present study we have followed the plan of grouping the communities in large categories rather than of seeking to work out a formula which would take into account all the elements of the situation. It is hoped that future studies can build upon the phenomena observed in this investigation and develop the measure or measures which will make a more extensive study practicable.

We may now proceed to analyze the results of our study of thirty-six communities, holding in mind that we have two purposes: (1) to describe the situation as we found it, whether or not we can fit it into any present conceptual pattern, and (2) to test the hypothesis that increasing state or federal aid, over and beyond that necessary for equalization, contributes to adaptability.

TESTING THE CENTRAL AID HYPOTHESIS

Let us first see whether the use of the tax leeway measure brings us better predictive results than the use of the valuation per class-

^{5a} Note that Knott's results are significantly positive as contrasted with the non-significant relationships (though positive) found in the comparison of valuation per classroom unit with 1938 adaptability in Pennsylvania communities. There were many differences in the setup of these two studies. In addition to the differences in the measures of financial resources and the homogeneity of districts with respect to expenditure and other factors, there is also the difference in the measure of adaptability. Knott used change in expenditures, and the addition or elimination of specific services, over the period to compare with change in tax leeway. His study was not disturbed by any emergency aid in New York State similar to that used to help poor districts in Pennsylvania during this period. The presumptions would seem to be strongly in favor of the results obtained by Knott. When we compare tax leeway as of 1927 with expenditure change from 1930 to 1937, which is somewhat closely associated with the technique used by Knott, we find that while the results are not statistically significant, they are negative. We also find that when we relate tax leeway for 1927 with adaptability for 1937, with expenditure held constant, the result again is negative. It is not safe to say that these negative results are to be discarded because of special conditions operating in Pennsylvania, such as state aid during this period, although this may be the explanation. Rather, it is safer to take the point of view that this hypothesis should be given further tests in different settings.

room unit. The correlation of 1937 adaptability with the 1930 tax leeway measure is .217 as compared with .283 with the 1930 valuation per classroom unit measure. The correlation between 1937 tax leeway and adaptability for 1937 is .245 as compared with valuation per classroom unit of .300 for the same year. It will be seen that the use of the tax leeway measure as the measure of financial resources has not improved predictability, although considering the number of cases it cannot be said that these correlations are necessarily lower. The only thing we can say is that if there is a difference it is not sufficient to show up significantly with our number of cases.

When we turn to the detailed data for the tax leeway groups we find that there is a significant relationship between tax leeway of 1927 and adaptability for 1937, although it is not of such a nature as to show up on a correlation covering the whole range of districts. Table 23 gives the distribution of the adaptability measures of our thirty-six communities grouped in six categories of tax leeway as measured by the formula $L = (50 - T) W$.

There are several inferences to be drawn from the distribution shown in this table. Remembering at all times that sampling error

TABLE 23

Distribution of Adaptability of Thirty-six Communities in Six Categories of Financial Resources

TAX LEEWAY GROUP	AVERAGE 1930 TAX LEEWAY DOLLARS PER PUPIL ^a	NUMBER OF COMMUNITIES	ADAPTABILITY ^b		
			Low- est	Aver- age	High- est
Group A	38	6	13	22.5	42
Group B	67	6	8	35.0	61
Group C	152	6	21	31.8	50
Group D	193	6	12	29.2	38
Group E	370	6	17	35.0	69
Group F	627	6	30	54.7	84
All districts . . .	241	36	8	34.7	84

^a Residual local tax resources based on assumption of 50 mill local property tax limit.

^b Adaptability measure on scale of 100 points adapted from the Survey Manual (See *supra*, pp. 5-13).

is involved in all figures because we covered in our field study only thirty-six communities—six in each leeway group—we first give attention to the averages of the six groups. The financial resources groups are arranged from lowest to highest. The six communities in Group A are those in the lowest sixth in tax leeway and the communities in Group F are in the highest sixth in tax leeway, the other four groups being arranged in intermediate order.

There appears to be a fluctuation of adaptability means, but without a progressive trend within the four middle groups. The average adaptability score of Group B is 35; the average adaptability score of Group E is also 35; the two middlemost groups in our sample were somewhat lower, having an average adaptability score of about 30 to 32.

This variation we may charge chiefly to *sampling* variation. Under the circumstances, therefore, we will assume that adaptability in the middle four groups represents slight if any real differences. The noticeable changes in adaptability averages in Table 23 appear in Groups A and F—groups at the ends of the tax leeway scale. Communities with very low tax leeway have noticeably low adaptability. Communities with very high tax leeway have noticeably high adaptability. But the middlemost tax leeway communities do not appear to show a relationship between adaptability and financial resources.

Let us now go back to the central aid problem to which this investigation of tax leeway is related. The state fund to be distributed in order to increase tax leeway will result in an equal lowering of the tax rate in all but a few of the communities. Since tax leeway is tied up with the wealth of the community, it is obvious that this uniform reduction in tax rate will represent far more leeway in the able districts than in the poor districts. The question of influencing tax leeway by central aid, therefore, is particularly aimed at the able districts, those which presumably provide the type of educational program favorable to invention and to the experimentation necessary in the early introduction of adaptations. The results shown in Table 23, therefore, seem to confirm the hypothesis that reduction in property tax through state aid will contribute to adaptability in so far as it is influenced by the able com-

munities. Although this confirmation is only indirect, it shows that able communities for some reason are more adaptable. We can only infer from this that if they had *more* tax leeway they would be *more* adaptable.

It is of interest that while within the middle range of districts tax leeway appears to be of no great moment, with the poorest districts it assumes considerable importance. Inasmuch as the state aid device affects the tax rate element and not the wealth element, additional aid that would come from increasing the tax leeway would be an ineffective device for the poorest districts which now apparently do not have the resources for bringing about a proper program. Their low adaptability is probably due to lack of expenditure—the result of an inadequate equalization program. Certainly if tax leeway is to be built up in these poorer districts, it must be by some device other than that of utilizing a smaller rate of contribution toward the cost of the foundation program than the maximum which would bring about equalization. We must have some device that will have a greater effect upon financial resources than that which comes from a lowering of the tax rate.

It suggests the possibility of using some such device as that proposed by Updegraff. In his studies in Pennsylvania and New York State nearly two decades ago, Updegraff proposed a plan by which any district of less than average ability would be entitled to receive from local sources and state aid combined as much money per classroom or pupil unit as the community of average wealth obtains from the same local tax. Some variation of this device would increase the financial resources of the poor communities far more effectively than the variation of the equalization formula now in use.

Of course we can throw up our hands and abandon hope in local initiative as a means of bringing about desirable adaptations in these communities. This is an alternative which we should hold in mind in examining the other adaptation phenomena as they operate in the poor districts.

An additional effect is to be noted from data appearing in Table 23. There is a great deal of overlapping in the range of adaptability of the six groups, showing that differences in tax leeway alone have very limited predictive value so far as the school program in

individual communities is concerned. We note, for example, that the lowest adaptability score in the most able communities (Group F) was 30. One community in the least able group exceeded this. It was the community in Group A, with a score of 42. The highest ranking community in adaptability, it is true, was found in Group F, the group with greatest tax leeway. However, the least adaptable school, one with a score of only 8, was found not in the lowest tax leeway group, but in Group B. Note that in Group D, the second from the highest tax leeway group, we find one community scoring but 12, which is no better than the lowest scoring community in Group A, with a score of 13. The lowest score in Group A is not noticeably exceeded by a score of 17 of one community in Group E, the next highest group in financial resources.

The significance of variation of means in Table 23 in terms of the high degree of overlapping observed between individual scores among groups was checked by methods reported in Supplement B.⁶ It is sufficient to say here that the variation of the means, as shown in the table, was found to be statistically significant.

CONCOMITANTS OF TAX LEEWAY

What are some of the characteristics in communities in Group A of Table 23 which are associated with this low level of financial resources and which contribute to the low level of adaptability in these communities? The same question might be raised with reference to the high level of adaptability in Group F communities of Table 23.⁷

The results of analyses of factors revealed that in addition to adaptability means, as shown in Table 23, the six tax leeway groups differ significantly in certain other factors. We present below a list of factors which, in our sample, were associated with tax leeway. These are followed by a list of factors which were found not to be associated significantly with tax leeway.⁸

⁶ Cf. Supplement B, p. 457.

⁷ For details of methods of handling factors by analysis of variance and covariance, see Supplement B, Note 12, pp. 453-460.

⁸ Group means of factors were subjected to tests of significance as explained in Supplement B, pp. 453 ff. All those which showed *significant* or *highly significant* variation among means of leeway groups were placed in the first category. All those with variations which were *inconclusive* or *marked but not significant* were placed in the latter category. Cf. footnote Chapter III, pp. 57-58.

The following are significant covariants of financial resources:

(1) As is to be expected because of the close relationship between wealth and tax leeway and other measures of financial ability, the six groups differ significantly in wealth, measured in terms of full valuation of property per pupil, as of 1927, as of 1930, and as of 1937.

(2) Since the groupings themselves were based upon measures of tax leeway for the year 1930, it is to be expected that tax leeway itself is associated with these groupings, not only for 1930 but also for the recent period of 1937.

(3) The proportion of educational cost borne by state funds is a further significant variant among resource groups, the abler receiving less. This is due to the fact that the present method of the distribution of state aid in Pennsylvania is, to a great extent, on a basis which equalizes the burden of supporting the local school program.

(4) One important component of finance resources is tax rate. An outstanding difference among communities of various levels of tax leeway is the degree to which local levies vary. The poorer communities and those with least leeway are now levying a local property tax at a higher rate both for education and for other services.

(5) Communities with least leeway, although on the average they levy higher rates, are able to produce less income than communities with higher leeway. As a consequence, we find tax leeway groups differing significantly in expenditure for education.

(6) The degree to which teachers report financial difficulties as an obstacle to change in the school program differs among communities. It is of interest to observe,⁹ however, that the dominance of financial difficulties among the obstacles recognized by teachers is greatest not in the least able communities, but in communities nearer the average in financial resources.

(7) Among educational factors associated with financial resources of communities, two are *highly significant*. One has to do with the degree to which teachers develop ideas as a result of their own personal development (teacher originality), and the other has to

⁹ Cf. Table 24, *infra*, p. 160.

do with the level of training of teachers. Communities with low tax leeway have schools, on the average, staffed with teachers noticeably low in professional training.

(8) One community factor distinctly associated with finance resources is education of adults. The second from highest group of communities in finance resources appears to be lower than expected on the assumption of a consistent trend, but the wealthy communities are made up of greater proportions of adults who have had high school and college education than are found in the poor communities.

The following are factors not significantly associated with finance resources:

(1) Among economic factors, the size of the district and the degree of change in expenditure between 1930 and 1937 are not significantly related to tax leeway.

(2) While there is a significant variation in the general quality of personnel as measured by a composite index among leeway groups, certain individual measures of attitude of teachers, degree of teacher experimentation, sex and marital status, age, turn-over, and inbreeding are *inconclusively* associated with financial resources. Other factors are mentioned in item (7) above.

(3) A composite measure of community life is significantly associated with finance resources of communities, but the effects on tax leeway are not apparent for such individual measures as the average level of public opinion, the degree of community opposition, the proportion of the population over 21 years of age, the degree of home ownership, the nativity of inhabitants, changes in population and mobility of population, and the occupational characteristics of communities. Taken alone, the relationship to tax leeway of some of these measures may be said to be *inconclusive* and for others *marked but not significant*.

A summary of variations among finance resources groups on the more significantly associated measures appears in Table 24.

WHY TAX LEEWAY IS ASSOCIATED WITH ADAPTABILITY

Factors have been outlined above which were found to vary significantly among our six leeway groups. The degree to which

TABLE 24

Averages of Communities Grouped According to Tax Leeway on Measures Significantly Discriminating Among Groups

MEASURE	GROUP AVERAGES						AVERAGE OF THIRTY- SIX DISTRICTS
	A	B	C	D	E	F	
Adaptability	22.5	35.0	31.8	29.2	35.0	54.7	34.7
Wealth per pupil, 1930 (thousands of dollars)	2.4	3.6	6.0	6.2	11.0	16.9	7.7
Wealth per pupil, 1937 (thousands of dollars)	2.0	3.1	4.2	6.2	8.7	14.3	6.4
Wealth per W.E.C.U., 1927 (thousands of dollars)	70.0	98.2	197.3	172.2	251.5	462.7	208.6
Tax leeway, 1930	38.0	67.0	152.0	193.0	370.0	627.0	241.0
Tax leeway, 1937	25.0	53.0	80.0	187.0	268.0	540.0	192.0
Percent current expense from state	38.2	28.3	18.0	20.5	16.3	16.0	22.9
1937 tax rate for educa- tion (in mills)	25.2	17.2	15.8	13.5	10.0	7.8	14.9
1937 tax rate other than education (in mills) . .	14.5	14.8	14.7	8.3	9.7	6.0	11.3
Current expense per pu- pil, 1930 (dollars) . . .	68.0	72.3	78.5	73.7	105.0	133.2	88.4
Current expense per pu- pil, 1937 (dollars) . . .	73.8	82.7	77.8	84.7	100.2	116.2	89.2
Teacher reports of fi- nance obstacle ^a	33.2	37.3	34.2	49.7	29.7	21.7	34.3
Teacher originality ^b . .	19.7	22.7	24.5	17.0	26.8	24.0	22.4
Average years teacher training above high school	3.2	3.8	4.1	2.9	3.6	4.2	3.7
Percentage teachers more than four years training above high school	17.0	29.7	36.7	20.7	25.8	37.7	27.9
Percentage adults with college education . . .	4.0	11.8	20.7	9.8	23.7	24.8	15.8

^a Percentage of obstacles to the making of changes in the school program which may be classified as financial.

^b Percentage of all sources of ideas of teachers which have to do with the personal growth and development of the teacher himself.

these factors vary concomitantly with adaptability will be discussed in this section. An analysis of this concomitant variation shows the degree to which an individual factor explains the effects which tax leeway has upon adaptability.

First it should be noted that certain of the eight significant covariants of financial resources listed on page 158 are simply descriptive of tax leeway itself. This is true of items (1), (2), (3), and (4). Of these, items (1), (2), and (4) may be thought of as being general, while item (3) is a special characteristic of tax leeway in Pennsylvania. The first item confirms statistically that which is already known, that wealth (valuation per classroom unit or per pupil) is a large element in our tax leeway measure. The second item shows that the tax leeway measure is sufficiently constant to indicate a significant relationship, at least for a decade, even when that decade includes such upsetting factors as a great depression. The fourth item confirms a strong expectation that districts with high tax leeway are those with lower property taxes.

Items (5), (6), and (7)—expenditure, financial obstacles to change, teacher originality and the level of training of teachers—might conceivably be changed by a modification of tax leeway itself. Expenditure might be thought of, at least in part, as an intermediate step between tax leeway and those items which, like training of teachers and the elimination of financial obstacles, should directly affect adaptability.

Number (8) of the significant covariants of tax leeway (education of adults) is a factor which in a sense coordinates with tax leeway—the resultant of common causes rather than a characteristic of tax leeway itself. This is the type of factor which we cannot expect to affect by an artificial change in tax leeway. The public school professional group might conceivably be affected in a generation but not immediately.

It is of interest that if means in Table 23 for adaptability are adjusted for that which could be predicted had there been no difference in *current expenditure* among communities in 1937, the results would not have been significant. The means then would have varied no more than could be attributed to chance.¹⁰ Also,

¹⁰ For a statistical summary of results of applying analysis of covariance see Supplement B, pp. 465-466.

when differences among school systems in training of teachers beyond the high school are ruled out, adaptability is not significantly associated with leeway.

Highly significant elements explaining tax leeway differences are derived from measures of the local community. The proportion of homes of high socio-economic level, as measured by the McCall Educational Background Questionnaire, shows the general culture pattern of schools to be partly the basis upon which tax leeway differences show up. The attitudes toward change in education of the community as measured by our Poll of Public Opinion also partially explain differences in adaptability of leeway groups, as does the percentage of college graduates in communities.

As explained above, adaptability means adjusted for that which would have obtained had there been no difference in *current expenditure* among communities in 1937 would not be significant.¹¹ In other words, one reason—and perhaps an obvious reason—why tax leeway produces differences in adaptability of school systems is the fact that communities with greater leeway now are those which also have been in a position to spend greater sums for education.

As a whole, professional characteristics of the school systems also explain differences. In particular, when differences among school systems in training of teachers beyond the high school are ruled out, adaptability is not significantly associated with leeway. Another measure which explains how leeway differences come into the adaptability pattern is the percentage of teachers with outside experience. The degree to which teachers get ideas from outside the local community is an element partially explaining the influence of tax leeway on adaptability. It is quite apparent, therefore, that the contribution of tax leeway to adaptability of schools is to a great degree indirect.

In the study of the forty-eight-community sampling, teachers were asked to list what they believed to be the chief obstacles to adaptability in the local school. Among the types of obstacles listed were those which had to do with finance.¹² The percentage of all

¹¹ For a statistical summary of results of applying analysis of covariance see Supplement B, p. 465-466.

¹² See *infra*, pp. 259-263.

obstacles listed by teachers in any one community which were of the financial type was taken as an index of the degree to which finance limitations were consciously felt by personnel. In the very ablest group of communities (those in tax leeway Group F) we found an average of 21.7 per cent of all obstacles listed as having to do with financial limitations. In the very lowest communities in finance resources (Group A above) the average index was 33.2 per cent. A slight tendency was found for less feeling of financial limitations on the part of professional staff members in the very ablest communities. Outside of this there appeared to be but a slight relationship between the degree of feeling of financial limitations and the actual economic condition of the community. Indeed, the group just above the average in tax leeway was the one in which greatest feeling of financial difficulty was expressed by teachers. The average index was 49.7 for this group. In the very poorest communities there is evidence that the level of educational service is so low that problems of sufficient importance have not been raised by professional people to the extent that the full force of finance restriction in these communities is felt.

The highest index in the poorest group of communities was 43. The highest index in the ablest group of communities was 38. It appears that in communities which are financially favored, a number of the members of the professional staff are inclined to over-emphasize the financial aspects of the adaptability problem inasmuch as, in these communities, there is little of validity in the view taken by these teachers. In wealthy places almost as high a percentage of teachers blame troubles on finance as in the poorer places. Also, the average degree of teacher consciousness of finance limitations did not vary significantly among the community types—rural, industrial, residential, and composite—in which, as shown above, there are very significant differences in financial resources and in adaptability.

The correlation of this measure with adaptability is negative and there is a slight tendency for places in which teachers frequently report financial difficulties to be those in which adaptability is genuinely retarded. However, a rather unexpected change takes place in the relationship when the correlation is based upon com-

munities matched as to true financial ability or tax leeway and size. Communities comparable as to size and tax leeway show a marked and positive relation between the degree to which teachers feel financial restrictions and the degree of adaptability ($r = .376$). The schools, in other words, which are achieving and adapting and making progress in new frontiers of educational service are *those in which the pressure of financial limitations is felt by teachers*.

It is of interest that among those items which did not show a significant relationship we find such matters as size of district and type of community life which, like item (8), may be thought of as coordinate with tax leeway, and also certain personnel factors, such as attitudes of teachers and degree of teacher experimentation, which might reasonably be expected to be influenced by tax leeway.

Communities with high tax leeway are communities in which social and economic life is richer and more varied and more stimulating. They tend to be communities in which the general level of the education and social intelligence of the adult population is high. They are communities which have better-trained teachers and teachers who are generally professionally more capable of producing adaptability. And along with this, they are communities with low tax rates, but with sufficient wealth behind each pupil for the low tax rate to produce an adequate revenue for school purposes, making possible selection of competent leaders and well-trained teachers.

Summary

VALUATION PER CLASSROOM UNIT AND TIME OF MAKING ADAPTATIONS

(1) The early adaptors are relatively wealthy in the case of eight adaptations studied. In five out of the eight cases the median adaptor was drawn from the top quarter of all districts as to wealth, and in the other three cases from the third quarter. However, there are instances of relatively poor districts making adaptations rather early, but lowest quarter districts do not appear until the second period except in two of the eight adaptations—reorganized high schools and adult education.

(2) After the first period there is more rapid regression toward

the average than was found in the case of size of districts, but the wealthier districts remain more responsive up to the 20 per cent diffusion point.

(3) After 20 per cent diffusion the distribution of adaptors becomes fairly representative of the distribution of all communities.

(4) Kindergartens are still a rich district phenomenon. The median in all of the four periods of their life is drawn from the upper quarter. A lowest quarter community did not introduce special classes until the fourth period.

WEALTH AND CURRENT ADAPTABILITY

(1) No highly significant correlation was found between current adaptability and wealth measured as of 1937, 1934, or 1927. The highest correlation was with wealth as of 1937. Wealth, therefore, does not appear to be predictive of adaptability.

TAX LEEWAY AND ADAPTABILITY

(1) Tax leeway is not as predictive of adaptability as valuation per classroom unit. The difference is small and unreliable statistically.

(2) Low tax leeway districts are markedly less adaptable and high tax leeway districts markedly more adaptable than the great mass of districts. Since state aid devices for increasing tax leeway are now aimed particularly at the able districts, this finding is of practical significance.

(3) The higher tax leeway districts (1930) are wealthier both as of 1927 and 1937, possess greater tax leeway in 1937, receive less state aid, have lower tax rates for education and for other purposes, have higher expenditure, have less objection to expenditure as reported by teachers, have better-trained teachers, and have a more extensively educated adult population. From the standpoint of affecting adaptability through artificial changes in tax leeway, the important relationships are those with expenditure, financial obstacles to change, and training of teachers.

(4) No significant relationship was found between tax leeway and size of district, change in expenditure level from 1930 to 1937, attitude of teachers, amount of experimentation by teachers,

sex and marital status of teachers, their age, their turnover, the amount of inbreeding of teachers,* average level of opinion as to what the schools should do,* degree of community opposition, the proportion of the population over twenty-one years of age, the degree of home ownership, the nativity of the population, changes in population or occupational characteristics.* Of the above, those starred show a marked relationship which is not statistically significant.

(5) The effects of tax leeway upon adaptability are to be explained not by economic concomitants alone but also by local professional and community cultural elements which are associated with it.

CHAPTER VIII

How Current Expenditure Affects Adaptability

IF WE were to define the level of current expenditure as so much per pupil or so much per teacher, we would expect it to be related to adaptability. We would expect that out of a high level of expenditure would flow certain resultants which would facilitate change.

The degree to which these generalizations apply is the subject of this chapter. It also considers the possibility that there is a certain critical level of expenditure below which factors favoring adaptation are so limited that adaptations diffuse slowly, if at all. It considers also the possibility that there is another critical level, higher than the minimum diffusion level, below which we can expect but little experimentation leading to invention and necessary early introduction of adaptations.

The first group of considerations is of importance to persons and groups concerned with the general improvement of schools and with the introduction and diffusion of specific adaptations. Considerations having to do with the critical levels of expenditure are of interest to those who are concerned with improving the design or structure of the school system so as to make it more favorable to the discovery of need, the invention of adaptations, and early introduction and diffusion. The problems to which they particularly apply are the determination of the minimum program to be required and equalized through state and federal aid. If there is a critical diffusion level, this minimum program should not be below it if we expect to maintain our system of local initiative.

The other problem is that of coping with the movements, particularly strong during the last decade, for establishing tax limitations and central budgetary reviewing bodies for the purpose of restricting expenditures of able districts. If local initiative is to work effectively, it seems necessary that there should be districts in which the expenditure level is sufficiently high to favor experimentation. These considerations set the pattern for the present chapter.

*Relation of Current Expenditure per Classroom Unit
to Speed of Diffusion*

Eight of the nine special adaptations studied in Pennsylvania have a sufficient history to be useful in studying the influence of expenditure on early introduction and various later stages of diffusion. Table 25 gives the data on 344 communities comparable to Tables 19 and 22 for size and wealth.¹ Here again three adapting districts are chosen for each diffusion period—median, high, and low—and the quarter of the distribution of the entire 344 districts in which the particular expenditure falls is indicated by 4,

TABLE 25

*Average Current Expenditure per Elementary Classroom Unit of Pennsylvania
Districts Introducing Various Adaptations During Specified Periods of Diffusion^a
(in dollars)*

PERIOD OF DIFFUSION— DISTRICT RANK	ADAPTATION							
	Kin- dergar- tens	Reor- ganized High Schools	Spe- cial Classes	Home- making for Boys	Adult Edu- cation	Extra- curric- ular Activi- ties	Ele- men- tary Final Exami- nation	Supple- men- tary Read- ing
First Period								
First 3%								
Low	2,023 ⁴	1,054 ¹	2,076 ⁴	1,493 ²	1,054 ¹	1,493 ²	1,636 ²	1,360 ²
Median	2,462 ⁴	1,430 ²	2,338 ⁴	2,025 ⁴	2,076 ⁴	1,725 ²	2,221 ⁴	1,587 ²
High	3,127 ⁴	2,780 ⁴	5,901 ⁴	2,996 ⁴	3,127 ⁴	2,440 ⁴	2,458 ⁴	3,438 ⁴
Second Period								
4% and 5%								
Low	2,148 ⁴	1,533 ²	1,750 ²	2,148 ⁴	1,054 ¹	1,463 ²	1,979 ²	1,528 ²
Median	2,351 ⁴	2,083 ⁴	2,091 ⁴	2,202 ⁴	1,449 ²	1,597 ²	2,207 ⁴	2,150 ⁴
High	2,802 ⁴	2,496 ⁴	2,838 ⁴	3,438 ⁴	2,202 ⁴	3,580 ⁴	5,901 ⁴	2,780 ⁴

^a Average current expenditure for 1934. For all 344 districts the 90th percentile is \$2,463; the 75th percentile, \$2,015; the 50th percentile, \$1,667; the 25th percentile, \$1,295; and the 10th percentile, \$1,053.

¹ Lowest fourth in expenditure per unit. ² Second fourth in expenditure per unit. ³ Third fourth in expenditure per unit. ⁴ Highest fourth in expenditure per unit.

¹ For complete data see Supplement B, Note 15, p. 480.

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TABLE 25 (Continued)

ADAPTATION								
PERIOD OF DIFFUSION— DISTRICT RANK	Kin- dergar- tens	Reor- ganized High Schools	Spe- cial Classes	Home- making for Boys	Adult Edu- cation	Extra- curric- ular Activi- ties	Ele- men- tary Final Exami- nation	Supple- men- tary Read- ing
Third Period								
6 to 10%								
Low	1,669 ³	1,577 ²	1,122 ¹	1,122 ¹	1,176 ¹	1,167 ¹	1,535 ²	1,176 ¹
Median	2,440 ⁴	1,967 ³	1,888 ³	1,830 ³	1,560 ²	1,686 ³	1,663 ²	1,705 ³
High	4,413 ⁴	3,091 ⁴	3,089 ⁴	3,127 ⁴	2,667 ⁴	2,736 ⁴	2,589 ⁴	2,838 ⁴
Fourth Period								
11 to 20%								
Low	1,823 ³	1,463 ²	1,449 ²	1,579 ²	748 ¹	1,260 ¹	1,044 ¹	885 ¹
Median	1,907 ⁴	2,021 ⁴	1,811 ³	1,785 ³	1,693 ³	1,632 ²	1,729 ³	1,768 ³
High	3,008 ⁴	2,481 ⁴	4,006 ⁴	1,957 ³	3,008 ⁴	4,230 ⁴	3,127 ⁴	4,230 ⁴
Fifth Period								
21 to 30%								
Low	—	939 ¹	748 ¹	—	—	939 ¹	—	927 ¹
Median	—	1,675 ³	1,575 ²	—	—	1,750 ³	—	1,578 ²
High	—	4,006 ⁴	2,618 ⁴	—	—	5,901 ⁴	—	5,901 ⁴
Sixth Period								
31 to 40%								
Low	—	1,062 ⁴	—	—	—	939 ¹	—	1,122 ¹
Median	—	1,564 ²	—	—	—	1,845 ³	—	1,449 ²
High	—	4,413 ⁴	—	—	—	4,006 ⁴	—	2,885 ⁴
Seventh Period								
41 to 50%								
Low	—	—	—	—	—	1,054 ¹	—	965 ¹
Median	—	—	—	—	—	1,537 ²	—	1,698 ³
High	—	—	—	—	—	3,008 ⁴	—	3,127 ⁴
Eighth Period								
More than 50%								
Low	—	—	—	—	—	911 ¹	—	911 ¹
Median	—	—	—	—	—	1,579 ²	—	1,549 ²
High	—	—	—	—	—	2,472 ⁴	—	4,006 ⁴
Percentage of								
344 districts								
making adap- tation to date	13%	44%	25%	11%	13%	57%	21%	71%

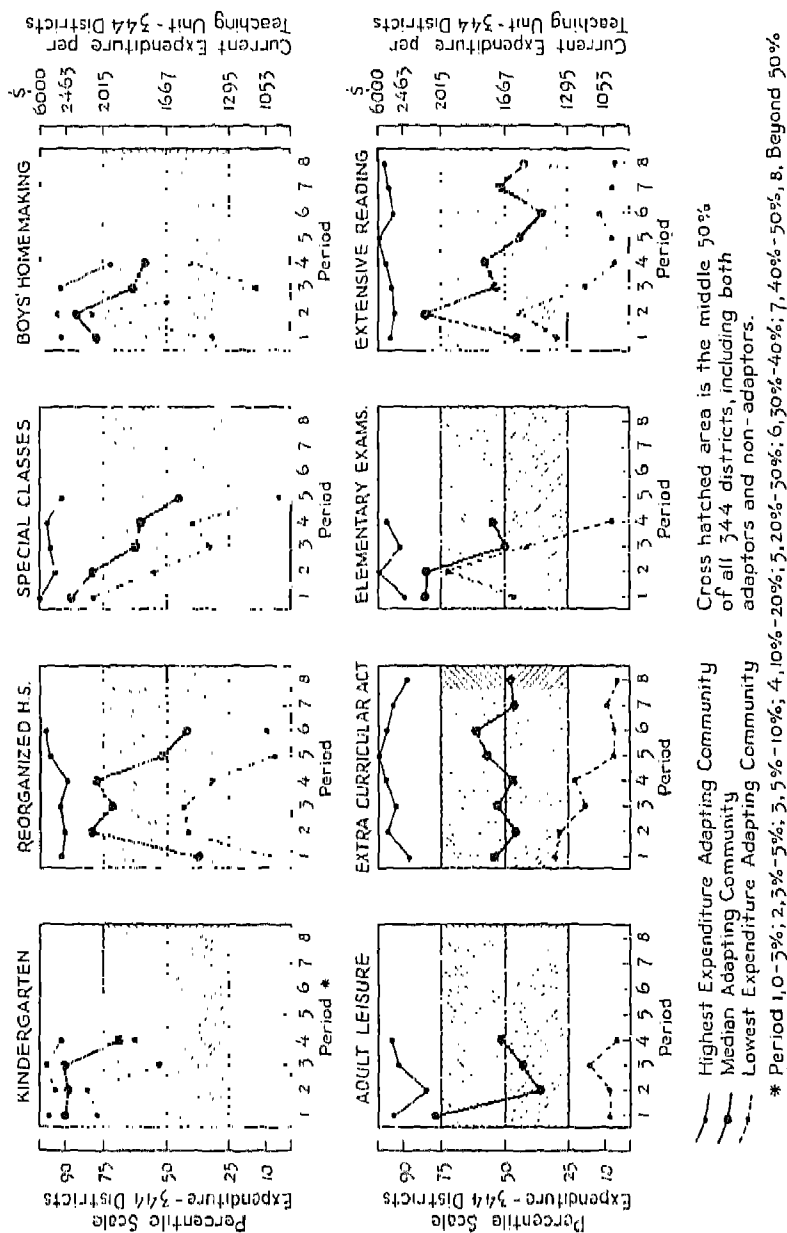


Figure 18. The Relation of Expenditure to Time of Adaptation of Eight Adaptations

3, 2, 1, four standing for the highest quarter and one for the lowest quarter of the 344 districts.

Figure 18 superimposes the distribution of adapting districts on the distribution for the entire 344 districts. It shows that the expenditure factor is operating in all but one of the adaptations.

Following the heavy line (the medians of adaptors), we note that the median adaptor in the first period was a top quarter district for five of the eight adaptations, a third quarter district, well above the average of the 344 districts, for one adaptation, and a second quarter district (below average) for two adaptations.

The effect of expenditure is most marked in the case of kindergartens. The median adaptor remains in the top quarter through the first three periods and then drops to the third quarter, but not far below the 75th percentile point. In no case do we find a below average district making this adaptation.

The median for special class adaptors remains in the top quarter through the first two periods, drops to the third quarter in the third period, and then drops to the second quarter in the fourth.

The median district introducing the two adaptations, homemaking for boys and elimination of elementary final examinations, remains in the top quarter through the first two periods and fluctuates around the average thereafter.

Starting out below average, the median district introducing reorganized high schools rises above the average in the second period and remains above average. Supplementary reading has much the same history.

The median extracurricular activities adaptors fluctuate above the average for the whole group throughout.

Adult education began as a high-expenditure district phenomenon, judged from the median of the adaptors, but it quickly changed, the median dropping below average in the second period and remaining there throughout. Lowest quarter districts appear in every period.

First quarter districts appear in the first period in the case of adult education and reorganized high schools. After the first period no more first quarter districts appear with reorganized high schools until the fifth period. In the other adaptations lower quarter dis-

tricts do not make their first appearance until the third or fourth period.

Earliness of Adaptation and the Expenditure Level

So far as these eight adaptations are concerned, we cannot conclude that there is a critical level below which introduction or later diffusion fails to take place, although we can say that by and large there is a stronger probability that it will take place in high expenditure communities than in low expenditure communities. If there were no differences with respect to expenditure, we would expect to find these lowest level communities represented in the first period. As a matter of fact, they are represented in the first period of only two of the adaptations. If, for the eight adaptations, introduction was as likely in low expenditure communities as in high expenditure communities, there would be about equal numbers of districts represented in Table 25 from the four classifications of districts. This would be true of the listing of low districts, median districts, and high districts. That this is decidedly not the case may be seen by again examining Table 25.

The level that divides the first and second quarter communities is \$1,295 per classroom unit. We can say that communities with less than \$1,295 expenditure are slower adaptors than higher expenditure communities; that they rarely appear among the first 3 per cent of adaptors (the first period), and that they remain definitely laggard during the first 20 per cent of the diffusion process. Similar observations will show the predominance of high expenditure districts in Table 25. From this analysis it is clear that the high expenditure level was present in the early introduction of six of the eight adaptations.

The Element of Cost of Adaptations

One differentiating factor in this phenomenon is the factor of additional cost. Kindergartens and special classes are additional cost adaptations. Reorganized high schools may or may not be. High school reorganization has generally, however, been associated with other programs, such as the building program, to which a strong popular drive could be expected. Adult education is an additional

cost phenomenon but has been aided, particularly in recent years, by federal grants, and may have been sufficiently associated with unemployment to have reversed the expected influence of the expenditure level.

With the exception of adult education, these additional cost adaptations diffuse more readily in high expenditure communities. Of the other adaptations, reorganization of extracurricular activities and the elimination of elementary final examinations do not involve cost additions of any consequence. The adaptations, supplementary reading and homemaking for boys, represent in and of themselves relatively minor additional expenditures. The homemaking for boys adaptation, however, is more frequently found in high expenditure districts, as is the elimination of elementary final examinations. The other two adaptations, extracurricular activities and supplementary reading, are not. It appears, therefore, that we must find an explanation for the influence of expenditure upon adaptation in something besides the cost element involved in a particular adaptation. It is possible that since the offering of homemaking for boys requires first the offering of home economics courses and teachers with sufficient insight into the problem to see the need of these courses, it may be largely limited to the high expenditure schools. Again, elimination of elementary final examinations is not the simple phenomenon that it appears to be. It is but a manifestation of a new view of education. The contribution which expenditure makes upon adaptation, therefore, may operate through one of the resultants of high expenditure—for example, superior personnel.

Extent of Financial Resistance to Diffusion of Nine Adaptations

In community studies, more direct evidence of importance of the financial factor to diffusion was made possible by determining the actual degree to which the question of costs was involved in the local community in such activity as had taken place either opposing or favoring a particular adaptation. In each community, for example, an effort was made to determine whether the community had a kindergarten, to determine if there had been opposition on the part of individuals or groups on the basis of cost which the innovation

would involve or had involved. The question of whether cost was involved in the introduction of kindergartens was investigated and where no opposition appeared on the basis of financial arguments, a tally indicating this fact was made on the community history sheet for the kindergarten adaptation. In some cases no additional costs were involved, and occasionally, but rarely, opposition appeared because of the financial question where it was not justified. A third category concerns the community in which no additional cost was involved in the introduction of the adaptation. The same system of classification of status of local sentiment was made for communities without kindergartens.

The results of such classification of direct evidences of cost opposition are summarized for the nine adaptations in Table 26. From

TABLE 26
Cost Resistance to Diffusion of Nine Adaptations

ADAPTATION	COMMUNITIES WITH ADAPTATION				COMMUNITIES WITHOUT ADAPTATION				TOTAL NUMBER OF COMMUNITIES
	Number of Communities	Cost Opposition	Cost But No Opposition	No Additional Cost Involved	Number of Communities	Cost Opposition	Cost But No Opposition	No Additional Cost Involved	
Kindergartens . . .	14	7	5	2	29	21	8	—	43
Reorganized High School	28	8	14	6	17	12	3	2	45
Special Classes . . .	27	8	14	5	15	9	5	1	42
Homemaking for Boys	12	—	—	12	23	2	1	20	35
Adult Leisure Classes	24	6	13	5	16	2	13	1	40
Extracurricular Activities	30	3	13	14	11	—	4	10	41
Elementary Final Examinations . .	22	—	—	22	26	—	—	26	48
Integrated Curricula	4	1	—	3	44	—	20	24	48
Supplementary Reading	18	—	17	1	28	14	14	—	46

this table it may be seen that the kindergarten, the reorganized high school, special classes, and adult leisure classes are the four adaptations in which cost opposition was most frequently reported.

Usually, introducing a kindergarten means increasing the enrollment of the school and adding a teacher. Very frequently the reorganized high school adaptation required alterations of the school plant and often the introduction was accomplished by the construction of a new senior high school, or junior high school, or combined junior-senior high school building.

Special classes, when approved by the state department of education, must have a limited class size. In many communities this requirement means the addition of a teacher. However, this is somewhat offset by the fact that the State allots additional state aid for teachers of special classes.

Adult leisure classes in some cases, especially where the change has taken place without stimulation through the Federal Emergency Program, require additional cost to the district for the salary of teachers and the operation of school buildings in after-school hours. There are relatively few cases of opposition to the adult leisure classes among communities which had made the change, either because other types of adult service had already been provided or because instructional costs were met by the Federal Government.

In the other adaptations, no additional cost was noticeably involved. Relatively little opposition was found, with one noticeable exception: communities not provided with ample reading materials for school children are not able to launch such a program because of opposition which would be entailed in increasing the local budget to provide materials.

As a whole, there tends to be a correlation between the degree of cost involved and the extent to which one encounters opposition because of cost. There are many exceptions, however, in individual communities. But the extent to which the public opposes additional cost in a project and the extent to which, in the long run, poor economy would be entailed in introducing the project do not necessarily correspond. It has been shown, for example, that it costs no more to educate children in grades 7, 8, and 9 in the junior high school

than to educate them in the traditional elementary school and senior high school, yet so frequently does the junior high school involve a new building that opposition to the movement is based upon reluctance to increasing the local tax rate to meet a bond issue rather than upon the merits of the organization.

One important conclusion to be drawn from material appearing in Table 26 is the need for greater public understanding of the educational implications of projects when the public is likely to have occasion to pass judgment upon them because of costs which will be involved. One cannot over-emphasize the inadequacies of local financial planning in this respect. Examination of board minutes and examination of budgets and other materials prepared by local superintendents reveal that only on rare occasions in communities of all types is the local financial policy developed in a way which balances revenues and expenditures over against educational policy. If our professional people and our school boards themselves do not undertake enterprises of long-term planning based upon acceptable educational policy, one cannot expect citizens themselves to have an adequate understanding of educational implications of financial matters which come to their attention.

We now raise the question: Were the schools lowest in adaptability in 1937 in those communities which had suffered the lowest retrenchment as a result of factors operating during the economic depression? Two sets of measures of change in current expenditure were developed for this analysis. In one, the average annual change in position in a community since 1930 in dollars of expenditure per pupil was the measure; in the other case, the ratio of the average annual amount of expenditure since 1930 to the 1930 expenditure per pupil figure was the measure. The former measure is absolute and the latter is relative. In either case we find a noticeable (but not great) negative relationship. It is in the more adaptable schools, at the present time, that greatest relative and greatest absolute decreases in expenditure per pupil have taken place. It is in the more able community that there has been opportunity for cutting costs. Communities spending small sums for education have been assisted by state aid to maintain their rather meager level of support. The tax leeway of communities tends to

be the explanation, for communities on a comparable financial level show no correlation between change in expenditure and adaptability. This observation seems rather significant from the standpoint of the influence of expenditure for educational services. When the criterion is adaptability, there appears to be a rather wide margin of variations or fluctuations in the level of financial support of the school program among communities which once have attained a certain level of financial support.

Tax Leeway and Expenditure

For a given year there is a *highly significant* difference in the average expenditures per pupil among groups of communities with different tax resources. This is shown in Table 27 for the year 1930.

TABLE 27

Distribution of Per Cent Expenditure per Pupil in Average Daily Attendance in 1930 by Categories of Tax Leeway

TAX LEEWAY GROUP*	NUMBER OF COMMUNITIES	CURRENT EXPENDITURE PER PUPIL		
		Lowest	Average	Highest
Group A	6	49	68.0	86
Group B	6	57	72.3	89
Group C	6	66	78.5	97
Group D	6	53	73.7	102
Group E	6	80	105.0	136
Group F	6	91	133.2	199
All districts	36	49	88.4	199

* Groups arranged from lowest to highest in residual financial resources. Cf. *supra*, p. 155.

Current expenditure for the year 1930 is given in this table because the tax leeway groupings were determined on the basis of data from that year. Although the trend is irregular, the average expenditure tends to increase as the finance group of the community progresses from lowest to highest. The variation of the averages shown in Table 27 for the six tax leeway groups is highly significant.

*Educational Expenditure and Current Adaptability
in Thirty-Six Communities*

When we relate the adaptability scores of the thirty-six-community sampling to 1935 expenditure per weighted elementary classroom unit, we find a relatively high positive relationship ($r = .587$). This may be explained by the fact that it is in a sense a single measure of one manifestation of a whole series of resultants of such factors as financial resources and public attitude. In turn flow from it a whole series of causes more closely related to what actually occurs in the classroom—the level of teacher training, the size of classes, the provision of services supplementing the teacher, the provision of supervisory and administrative services, the provision of books and other instructional materials. Not all the resultants of tax leeway and public opinion flow through expenditure, but it is an important channel. Similarly, not all the conditions favorable to adaptability flow from expenditure level, but again it is an important intermediate source, perhaps the most important. Because of this potentially strategic value of expenditure level, we assemble here for the record the statistical evidence of the interrelationships it bears to other measures.

For purposes of making rigorous tests as to the degree to which variations in educational cost are associated with adaptability,³ the appropriate unit of measurement is an adjusted expenditure per

³ If one school system is spending \$3,000 per classroom unit and another \$1,200 per classroom unit, we would expect the one spending \$3,000 per classroom unit to be the more modern school. Particularly is this so when we realize that no small part of the increase in cost of education in this century has come from the necessity of adjusting our educational process to important discoveries such as the untenability of the formal discipline theory. These adjustments have involved varied curricula, a study of individual children in adjusting to their needs, improved medical service, far more varied instructional materials and, in addition to all of these, a teacher who can do more than merely follow planned sheets worked out by an administrator, or a course of study handed out by the state department of education. Most of us, if we were asked to spend more than \$1,000 or \$1,200 per classroom unit would expect to get returns of this type. In a sense, then, any analysis in the 36 communities of the relationship between expenditure and adaptability may be considered not only an indication of the relation of expenditures to adaptability, but also as the relation of the level of expenditure to returns for money spent. We have retained the adaptability frame of reference, but the remainder of this chapter would as readily fit the "returns for money spent" conceptual pattern.

weighted elementary classroom unit. In making the present analysis it has been desired to include in the measure of cost only those matters which pertain directly to the operation of instruction and classroom work. Hence, only current expenditure items are considered, and from current expenditure are deducted costs for transportation and funds sent out of the district for payment of tuition of students attending schools as non-residents in other school districts. The basic measure of educational need, the weighted elementary classroom unit, allows for differentials in the cost of educating high school pupils and elementary school pupils. It allows for differences in cost of living of teachers in various communities.

Figures derived for the expenditures item were received from the State Department of Education in Harrisburg in files of state reports containing the necessary data for the year 1935, with the exception of a correction for cost of living. The latter was derived from a cost-of-living study made for the 1927 Commission to Study the Distribution of State Subsidies to School Districts.⁴

In the first column of Table 28 appear the current expenditures or school cost figures thus derived for eighteen large school districts and eighteen small school districts in our small sample of communities visited for field study. These figures are to be taken as acceptable measures of costs of education in the thirty-six school districts. Variations in sparsity of population and geographical location, producing differences in cost of living which are beyond the control of the districts, have been eliminated, as have differences in cost due to different proportions of high school pupils and differences in requirements for transportation and non-resident tuition.

In practice, larger school districts spend more money than do small school districts. The analysis can be made to eliminate variations in circumstances observed among large and small school districts by converting each to a unit defined as the school district of average size, 55 classroom units. On the average, the large schools spend \$164 per weighted elementary classroom unit more than the

⁴ Commonwealth of Pennsylvania. Authorized by the General Assembly, 1927, pp. 119-146. A community entitled to a 25 per cent correction for living costs would have its actual expenditure scaled down by 20 per cent. That is, it would require \$2,500 to purchase a \$2,000 program. Hence it would be considered for this analysis as spending \$2,000.

TABLE 28

Adaptability and Expenditure for Education in Thirty-six School Districts

SCHOOL DISTRICT	CURRENT EXPENSE PER WEIGHTED ELEMENTARY CLASSROOM UNIT		ADAPTABILITY SCORES ON BASIS OF 1000 POINTS	
	Unad- justed	Adjusted for Size	Unad- justed	Adjusted for Size
Large Districts				
1	\$2,840	\$2,676	660	582
2	2,423	2,259	444	366
3	2,315	2,151	498	420
4	2,257	2,093	694	616
5	2,245	2,081	475	397
6	2,161	1,997	838	760
7	1,968	1,804	401	323
8	1,913	1,749	417	339
9	1,823	1,659	327	249
10	1,772	1,608	152	74
11	1,737	1,573	372	294
12	1,569	1,405	287	209
13	1,527	1,363	295	217
14	1,509	1,345	610	532
15	1,504	1,340	377	299
16	1,463	1,299	282	204
17	1,287	1,123	370	292
18	1,183	1,019	126	48
Small Districts				
19	2,556	2,720	296	374
20	1,983	2,147	285	363
21	1,962	2,126	165	243
22	1,950	2,114	617	695
23	1,930	2,094	208	286
24	1,810	1,974	241	319
25	1,808	1,972	226	454
26	1,717	1,881	314	392
27	1,640	1,804	226	304
28	1,540	1,704	525	603
29	1,494	1,658	255	333
30	1,484	1,648	234	312
31	1,456	1,620	123	201
32	1,440	1,604	264	342
33	1,328	1,492	289	367
34	1,062	1,226	196	274
35	1,167	1,331	82	160
36	672	836	129	207

district of median size. The small schools, on the average, spend \$164 less than the district of median size. A deduction of \$164 in the case of large districts and an addition of \$164 to small districts produces in the second column of Table 28 an estimate of distributions one would expect of thirty-six communities of average size. As shown elsewhere in this volume, the adaptability of schools is, on the average, significantly different between large and small school districts. The large districts are 78 points higher in adaptability on 1,000 points, and the small districts are, on the average, 78 points lower than the theoretical district of median weighted elementary classroom units.

The actual unadjusted adaptability scores appear in the third column of Table 28. In the fourth column an adjustment has been made to indicate the expected value of a school if it had been of median size. The figures in the last column have been found by adding or subtracting 78 points, as the case may be. The comparison of the second and the fourth columns of figures in Table 28 is then a theoretical comparison between expenditure and adaptability *with the size element held constant*. In other words, the large and the small districts are treated in comparable terms.

The nature of the relationship between the two columns of adjusted figures could be performed without actually computing them, by methods of covariance analysis.⁵ The correlation between columns one and three of Table 28, the unadjusted values, is .587. But we are interested in a relationship removed of influences of the size element. This is the correlation between the second and fourth columns of Table 28. It was found to be .520, the correlation between adaptability and expenditure among districts of the same size category, large or small.⁶

The results of distributing the adjusted values in Table 28 are shown in Figure 19. In this figure are shown not only the regression lines indicating the expectancy of adaptability in a community in terms of its expenditure, but also the lines showing limits within which two-thirds of the cases might be expected to appear. From a band of expectancy of level of adaptability for given expenditure

⁵ Cf. Supplement B, pp. 480, 490.

⁶ *Idem*.

values, it was thought that such an estimate of the probable limits in variation in school program for given expenditure levels was better than relying on individual cases in which so few samples

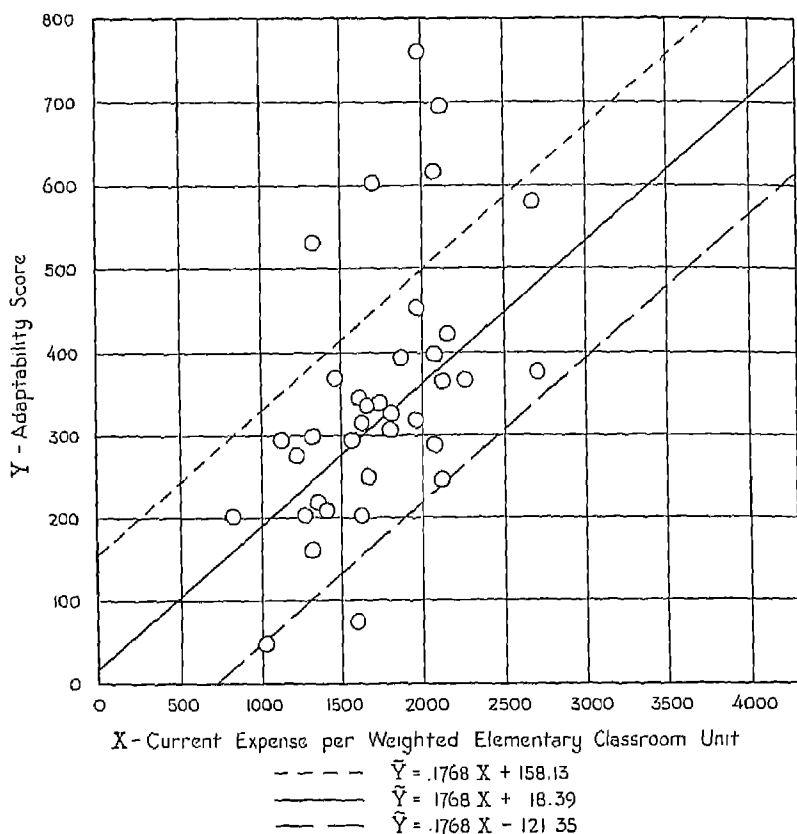


Figure 19. Distribution of Thirty-Six Communities by Adaptability and Expenditure

were available. From this diagram it is possible to approximate roughly the expenditure points at which *necessary* financial support and *sufficient* financial support are to be encountered for a small number and for a large number of school districts.

Before we make this analysis, however, it is necessary to show how three rather distinct aspects of adaptability are reflected in the

types of processes encountered in communities up and down the scale of 1,000 points. An analysis of the educational services encountered in communities on various levels of adaptability shows two rather distinct breaking points in which there are marked differences in the qualities of educational programs. The first breaking point is between 200 and 250 points on the adaptability scale. The second breaking point seems to be approximately 600 points on the scale.

Three questions were raised in determining the latter point: In which communities might it really be said that the concept of adaptability has been in operation? In which communities might the processes of carrying forward educational progress be said to be "autogenous"? In which communities is adaptability so characteristic an attribute that they may be said to be carrying themselves forward? Only three of the thirty-six communities were felt to have attained this level. They were each above approximately 600 score units of adaptability. What is it in these communities which possess qualities of self-regeneration and self-perpetuation that differentiates them from those in which local freedom and local initiative are not able to function?

Can we infer from an examination of the records of these communities what expenditure levels under present degrees of efficiency of school operation are high enough to insure a reasonably rapid diffusion of new adaptations? What levels are sufficiently high to insure the experimental situation which will encourage early introduction and, by inference, invention of new adaptations? To assist us in answering these questions we have arrayed below a description of schools operating on the three levels: above 600, between 250 and 600, and below 200 on the adaptability scale. Following these descriptions consideration is given to the cost aspects.

High Rating Schools (Above 600)

An examination of the various records of these communities and comparison of data from other communities reveal that in the schools which have exceeded this point of approximately 600 units the general level of attitude of teachers is high and above average in the

acceptance of a policy of experimentation and reform in educational thought. Teachers in these communities are not depending upon their own ideas exclusively, although there is a greater degree of individual experimentation among teachers in schools which have attained this high level of adaptability. Experimentation and changes which take place in communities at the top of the scale are of a type decidedly different from that encountered in communities below the 600 point. The changes are directed more to serving more adequately new functions rather than to serving more adequately the same ends and functions which have been served for many years. Ideas of teachers are not attributed in large degree to administration except, perhaps, through a very indirect line of administrative stimulation and leadership.

The process among professional and lay workers represents a high degree of cooperative activity as well as a high degree of outside contact which enables the community to take advantage of advanced developments throughout the state and the nation. Success of teachers is felt to depend but moderately upon an attitude of resignation and willingness to conform to various types of controls. On the other hand, teachers on the high level are inclined to feel that the success of their work and personal achievement are to be attained to a considerable degree through such personal qualities as initiative and personal adaptability. Teachers in these communities are better trained and more mature and have had more outside experience, more extension work, and more advanced degrees. In these schools teachers generally may be credited with a better understanding of the professional educational problems. They can talk intelligently about fundamental issues facing American education today. In these school systems there is much closer cooperation between the life of the community and the work of the school. This type of contact between community and school operates in both directions. The work of education is built upon elements of local culture, the curriculum itself begins to emerge from the social life of the community, the educational program itself becomes accepted as a more fundamental part of community life, and professional and lay workers work together in laying down a foundation of progress for both the community and the schools.

These communities were found to be high on the expenditure scale. In them one finds financial complacency. Teachers do not feel limited because of serious budget cuts and retrenchment, or because of needed revenues which have never been placed in service for the education of children.

The above description should serve to indicate the type of genuinely positive, dynamic, self-activating qualities of adaptability which appear to exist in communities which produce a score of approximately 600 points or more. A summary tabulation of high communities, average communities, and low communities in adaptability on the list of 183 adaptations in the survey manual appears in Chapter I, page 14. The tabulation of the five high communities which are above, or about up to, the 600 level, shows the degree to which a great majority of the 183 items appear predominantly in schools on this level. This is noticeably in contrast to the five average communities which may be taken to characterize the qualities of adaptability observed in communities with scores between approximately 200 and 600.

Middle Rating Schools (250-600)

In the average community changes have taken place in doing better some of the older educational practices. In curricular work we find supervisors of art and supervisors of music in most of the schools on the average level. We find supplementary materials in the classroom, but the materials are used in very much the same formal, non-functional way. Reforms are encountered in the disciplines; advances will be found in humanizing the instruction in mathematics and liberalizing requirements in this form of subject. Progress will be made in the area of reading methods and reading materials adapted to the advancing science of instruction in this subject. Extracurricular activities will be found in high schools of the average type, but in general, these activities have not taken on new functional significance in the educational objectives of the school. All schools will have certain externals of administrative service, such as health records, accounting forms, and the like, which are required by state regulations. Occasionally, in schools on the average level, there will be new records of a special type for new

purposes which have not appeared in all communities. Secondary education will not be found changed fundamentally in subject organization, but a greater opportunity for suiting individual needs of boys and girls is made possible by the courses which have been added to the curriculum in these schools. Academic requirements have been modified; electives in the high school make this possible. Other attempts are made to enable the boys and girls in both elementary and secondary school work to conform less painfully to the dictates of a subject-matter curriculum of a type not encountered in the very poorest communities. Special services in health and other aspects of child welfare are undertaken cooperatively with the aid of school agencies in many of these average communities.

The machinery of administration has reached a level not exceeded by any random group of communities. The nature of the development of administrative policy through the board of education and the relationship between the board of education and the superintendent, and both with the professional staff and the community, have shown advances in the average community.

School buildings, on the whole, reflect but some of the most elemental changes in construction which have been developed over the past quarter of a century. On the other extreme, the very lowest communities, those falling below approximately 200 to 250, have hardly the circumstances which one would consider the barest minimum of educational service. A noticeable advance, on the average, in these communities is to be found only in some of the most external types of changes in education. Occasionally the addition of a new type of course, or a new type of activity, basic requirements of the state and tradition, determines the quality of the educational program.

Where, in the group above 250 but less than 600, there is found occasionally adaptation or change as the result of experiments initiated in other communities, there is very little change to be found in communities on the lowest level. There is practically no adaptation in the level below 250, whereas there is a considerable degree of it in the middle span on the adaptability scale. Where the middle group is the follower of leadership set elsewhere, the

very highest group above the 600 point is a group which helps itself in setting its own pace. But in the very lowest communities, no pace has been set and no course is being run. A description of the very best schools—those exceeding a score of approximately 600—would be the guide for self-appraisal itself, for communities on this level have made progress in enough areas to receive credit in most of the items of the *Guide of Self-Appraisal*.⁷ On the other extreme is the community on the lowest level. A contrast drawn between these two will clarify further use to be made of critical points in Figure 19.

Low Rating Schools (Below 250)

The five communities lowest in adaptability typify education in the least satisfactory circumstances. Three of the five least adaptable communities are fourth-class districts⁸ and two are third-class districts.⁹ All these districts are dependent upon neighboring cities or metropolitan centers for their economic life. Aside from agriculture in three of the districts, each is a typical subsection of a larger community which has developed as a part of the anthracite or bituminous coal industries, the oil industry, or the steel industry. Two of these districts are located in the Anthracite Region, one in the North Central Region, one in the Northwestern Region, and the other in the Pittsburgh Region. Let us examine the nature of education in these communities.

These communities were selected because they were low in the number of adaptations which they had made from the list of 183. They are low also in the extent to which they have introduced the nine particular adaptations which were selected for extensive treatment. Only one community of the five had had a kindergarten. It had been introduced experimentally in 1926, but was discontinued after a trial of only two years. None had departed from the traditional organization of grades and high school. Four of the five districts offered eight years of elementary education and four years of high school. The other district had no high school. Its elementary school graduates attended school in an adjoining city.

⁷ Cf. *supra*, pp. 5-13. ⁸ In districts with less than 5,000 population.

⁹ Districts with between 5,000 and 30,000 population.

Only one of the five districts had provided special classes for the mentally handicapped children. Field representatives rated this special class as a class "without essentially different instruction or curriculum" from that which the children would receive if kept in the regular classes.

One had an adult education program, but it was a program initiated by the Works Progress Administration and financed as a relief project. In one district the high school was large enough to permit an expansion of the extracurricular program. In another adjustments were being made to problems of high rate of retardation in the grades. These were the only instances of "adaptation" in the nine specific areas under study. The nine adaptations had not fared well in these communities.

These schools are surprisingly like schools of a generation ago. They are all that the phrase "textbook school" brings to mind. For some children in these districts the only "pupil freedom" as a respite from the recitation or the lesson is during recess. In one school it had been recognized that children became fatigued under the constant strain of memoriter learning. A ten-minute exercise period had been introduced at midmorning. Children were marched outside for fresh air, and then marched inside for formal games. The whole performance was highly regimented. In one community the most stimulating educational experience observed involved the decoration of blackboards with drawings of characters in the reader. In this the initiative had rested with the teacher. The drawings were hers.

The history work of a seventh grade illustrates a common type of classroom experience of children in these districts. The system of instruction was departmentalized. Seventh grade children as well as sixth and eighth grade children attended special teachers for special subjects. This administrative device is well suited to schools such as these in which the basic purpose is teaching subjects. The seventh grade class attended the history and geography teacher's room for their history period. The history teacher specialized in this one subject on the theory that by concentrating on the one field she would know her subject better. The other teachers of these seventh grade children were also specialists.

It was the custom for the children to recite on the assignment and for the teacher to ask most of the questions. The children demonstrated the effectiveness of their study by answering questions. The teacher occasionally prepared illustrative materials to stimulate interest in the lesson and to make events and historical circumstances more vivid and alive. Pictures of the Pilgrims were displayed when the class was studying the early settlement of America.

The teacher had developed a method, one very common in schools everywhere, of assisting children in their study. The pages to be covered for the following day were assigned and questions written on the blackboard to guide the study toward specific purposes. The following is a sample of study questions:

Study Questions

What was suggested at the Albany Congress in 1754?

What is the Mercantile Theory?

What is smuggling?

What are writs of assistance?

Identify James Otis.

The critical educationist will note two shortcomings in this approach. First, the emphasis is on the learning of facts. A good textbook will give to some children, to a limited degree, important relationships, appreciations, and attitudes. But there is needed also the type of experiences which will offer opportunities to develop from history meanings and understandings which will contribute to a richer contemporary culture.

In the second place, all children are treated alike. They receive the same page assignments, the same study questions, take the same tests, and are marked on the same standards of achievement. Allowance for individual differences in ability and interests is casual and inadequately made.

A specific instance noted in another district will further characterize these schools. Here teacher contribution to the study of children was directed chiefly toward *learning* the textbook. On the blackboard in this seventh grade class field workers noted the following summary of points from a grammar lesson:

What determines the case of a relative pronoun?

The use of a *relative pronoun in a sentence* determines its case.

A relative pronoun may be used in a sentence as:

1. Subject of a clause or sentence.
2. Object of a preposition.
3. Object of a verb.
4. Predicate nominative.

Whether the above rules of grammar should be taught and would be taught in a good school is not the significance of the situation in which this was observed. But it is important that the teacher's description of methods in grammar convinced the observers that the rules were presented as segments of the composite process of having "command of the English language" without the provision of integrating experiences which would secure the generalization of the rules thus memorized.

Absent from elementary schools in these districts is any evidence of the "activity" type of program. The classrooms are particularly barren and lack the colorful displays of results of pupil activity seen in the more adaptable schools. In many of the classrooms the chief difference between instruction now and instruction of a half-century or more ago is a better textbook. Progress in this century in the writing of textbooks better suited to the psychological needs of children has brought better instruction to most classrooms in which so much depends upon the text.

Dependence upon the textbook is suggested by the relative lack of other types of instructional materials. In a few rooms there were crayons and drawing paper—the most meager media for drawing. It could hardly be said that any of these districts even had libraries, although scantily stocked shelves in one room in one of the five districts was called the high school library. This same room served also as a study room, the supervising principal's office, and the high school principal's office.

There are other differences, however, between the work in these classrooms today and the work in schools of a generation or two ago. The three R's have been supplemented in few instances by what we might call "cultural" or "newer" subjects. In three of the five districts instrumental and vocal music activities were included among the offerings of either the elementary school, the high school,

or both. In one district, instruction in music included a program of music appreciation. In two of the five districts the high school students, through programs of well-organized assemblies, had opportunities, not to be had in the classroom, of developing understanding and appreciation in art, music, drama, literature, and other fields. In only one district did the elementary program include nature study and science. In one district the curriculum included health and physical education, and in only one district was there a program of manual training, domestic arts, and vocational work. The latter enabled the children in that district to enjoy, in addition to formal work, practical and socially useful experiences not to be had in the other four districts.

As for local courses of study or original units of curricular planning, none existed in these five districts. The textbook was the curriculum and the course of study. There was in evidence practically no planning of content or method within a given subject to suit particular local problems and needs. In the subjects themselves, teachers were not familiar with various methods of instruction. Many well-established principles and facts in problems of learning to read and in problems of learning arithmetic are not known by these teachers. The teacher was rare who had the professional knowledge and the background to introduce more flexible procedures than the "textbook assignment" in her work.

High school and elementary school extracurricular activities were as undeveloped as the curriculum itself. Little extracurricular work was found in the elementary schools. In the high school only one district offered sufficient variety of duties and activities to reach a majority of students. In none of the districts were these activities put to use directly and purposefully as important means of attaining educational aims.

Cost of Attaining Critical Points in Adaptability

An interpretation of the relationship between expenditure level and adaptability may draw upon an assumption of the two critical points which we have just discussed: the minimum essential point of a score of approximately 200 in adaptability and the breaking

point around a score of 600. Because of the relatively low degree of correlation between adaptability and expenditure any analysis must make complete allowance for the fact that there is a broad range of educational services to be expected for a given level of expenditure. In Figure 19 this may be done by studying the progress of the broad band bounded on each side by a line representing a distance from the average of one standard deviation unit. If this is done rather than referring exclusively to the regression line or the line of averages, some consideration is given to the probable limits of variation about the most typical educational program for a given level of expenditure.

By referring again to Figure 19 it appears that an expenditure of approximately \$500 per classroom unit is necessary to ensure that a few school districts will break the critical point between 200 and 250 adaptability units. The upper limit of the band in Figure 19 reaches the 250 point in adaptability at approximately \$500. At any given expenditure level, it is to be remembered, only a few districts, by chance, are to be expected to fall above the line—approximately one-sixth of them. A similar proportion might be expected to fall below the line. Expenditure under \$500 may, therefore, be considered as not capable of producing a dynamic educational mechanism except in possibly a small number of school districts in which there are combinations of favorable factors and chance circumstances. Five hundred dollars per weighted elementary classroom unit appears, therefore, to be a critical expenditure point.

Another critical expenditure point falls in the neighborhood of \$2,000 to \$2,500 per classroom unit, for at approximately \$2,000 all but a small number of school districts, in practice, have been found in our sample to exceed the critical minimum of 200 to 250 in adaptation units; that is to say, the lower limit of our band reaches the lowest critical point in adaptability at approximately \$2,000. Only a few districts, approximately one-sixth, may be expected to fall below this lower limit. Just above the \$2,000 point, which represents the level at which one can expect the great majority of districts to exceed the minimum adaptability level, the upper limit of our band reaches the critical point of 600 units in adaptability. This is at approximately \$2,500.

It appears, therefore, that districts spending between \$2,000 and \$2,500 are, for the most part, above the danger zone, and a small proportion of them may be expected to achieve the superior qualities of adaptability indicated by attaining or exceeding an adaptability score of 600 points. Beyond \$2,500 evidently one will expect a consistent gain in the proportion of districts which will exceed the critical point of 600 units in adaptability.

What is to be expected on levels of expenditure beyond approximately \$4,000 must remain a matter of conjecture for the simple fact that so few observations are available in the higher expenditure levels. It is quite conceivable that a school system organized as an experimental laboratory for educational development might well cost exceedingly larger amounts because of the highly specialized nature of its program. This, however, would not be expected of the typical public school system. There is some evidence that increasing the adaptability of a school works progressively. There seems to be a tendency for the adaptability of the school to produce greater adaptability. At least, in studies of the nine adaptations we find tendencies in all cases for adaptations to take place more frequently in schools which have found it possible to take on a number of other changes in their program. In other words, raising the educational level of the school might be done in a way to produce an accumulative snowball effect on expansion at an increasing rate.

Implications for Structural Design of School Systems

From the above descriptions it is quite clear that the schools in the lowest level cannot be expected to function very satisfactorily under local initiative. The question may seriously be raised whether an attempt to operate such schools under local initiative is not highly unrealistic. Certainly this seems to be true if there is any merit in operating schools anywhere near approaching modern standards. Yet this level is characteristic of the vast majority of schools in many of our states, if we can judge from their expenditure and, by and large, the writers believe that we can.

According to Figure 19 we have to attain a level of approximately \$2,000 before the chances are fifty-fifty that a school will be as good

as the middle level schools, and until the chances are five out of six that they will be better than the low-level schools. Surely, seeing the nature of these schools from the above description, we can have little hope for the effective operation of local initiative in modernizing our schools and keeping them adapted to changing conditions with a minimum level of much less than \$2,000. We can put forward a strong hypothesis that however high other considerations¹⁰ may lead us to set our minimum program below which no locality is allowed to go in expenditure, we cannot afford to have it below approximately \$2,000. This would represent an increase in expenditure in practically all our states and in some states an increase in expenditure above that of any district, even at the highest point of its expenditure prior to the depression.¹¹

But we could not be content with \$2,000 as the maximum expenditure. A state must have sufficient conditions favorable for experimentation and early introduction of adaptations combined with a goodly number of sources outside the state upon which to draw. Obviously the poorer states cannot hope to have many such schools. The burden is always stronger on the abler states to keep the way open to provide these favorable conditions.

These considerations argue in every state against such limiting factors as tax limitation laws and central budgetary-reviewing bodies. No central budgetary-reviewing body can be set up with sufficient wisdom to pass upon the desirability of local experimentation in the meeting of new needs or in a better meeting of the persistent needs.

Summary and Implications

To those interested in the diffusion of individual adaptations, the evidence given in this chapter suggests that high expenditure level is one of the important considerations in the selection of a community as an early introducer. There is a tendency for this to vary with the money cost of making the adaptation, or at least with the public's idea of the money cost.

¹⁰ As, for example, the criterion of expenditures in communities of average wealth, which in some states would be above this level.

¹¹ Paul R. Mort, *Federal Support for Public Education*, p. 218.

To those interested in the structural design of public school systems, this chapter suggests a strong hypothesis that the minimum of expenditure in a state should not be much less than \$2,000 per elementary classroom unit and that wherever possible, communities supporting schools as high as the \$4,000 level should be encouraged. It suggests also that where a number of schools are much below the \$2,000 level, local initiative cannot be expected to be a satisfactory means for the modernizing of schools.

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EDUCATION IN THE RESIDENTIAL COMMUNITY

The best schools are located in the residential type of community. Education in the residential school district is favored by better financial support, better trained and more experienced teachers, and a social setting more conducive to adaptability than those of other types of school districts. The plane of living, the level of culture, and the level of educational adaptability are high in communities of this type.

PART III

Individuals and Agencies in the Adaptation Process

Environmental conditions not subject to control, or yielding to human effort only slowly, condition the adaptability of schools, but the actual adapting is always the result of human behavior. The eight chapters comprising Part III show the way in which various individuals and groups participate in bringing about change and report findings with respect to various characteristics of adaptors and non-adaptors. They reveal the manner of operation of many of the factors studied in earlier chapters. The results reported here bear on state regulation, minimum standards, and to a certain degree upon structural design of school systems. Mainly, however, they should be of interest to persons within and without the school system interested in having schools as good as we know how to make them.

Studies of the processes of diffusion were made as the result of direct contact with 48 school systems in the State of Pennsylvania representing various levels of circumstances which might be expected to favor or hinder the introduction of these services. These 48 communities include the 36 used in the statistical studies reported in earlier chapters. The other 12 are in the upper part of the wealth and expenditure scale. In field work the three chief categories of influence considered were: (1) all those involved in the purely local complex, both professional and non-professional; (2) the central government operating through its legislative and administrative agencies; and (3) all non-local organizations not direct agents of the state government. In many cases the adaptation in an individual local community, it is to be observed, has been a combination of two or of all three of these types of relationships.

Since it is within the local unit that educational changes take place and since, for the most part, our study viewed the influences of the complex of factors from within the local unit, this part of the report begins with the local unit and follows outward the lines of influence which converge upon it.

CHAPTER IX

Local School Administration and Adaptation

IN EARLIER chapters we have discussed patterns of the diffusion process and certain structural factors involved in the process. We now turn to the process of adaptation itself.

Activating Forces in the Local Unit

From studies of the precipitating influences of change made in individual school districts, the local unit does not appear to be exclusively the initiating agency. In communities which had introduced the various adaptations, among the nine, the attempt was made, by tracing the course of events within the local unit, to classify the initiating stimulus as exclusively local, as exclusively external to the local community, or as a combination of the two. A summary tabulation of local and non-local stimuli as observed in the introduction of the nine adaptations appears in Table 29.

TABLE 29

Classification of Influences Operating to Produce Nine Adaptations in Forty-eight Communities in Terms of Local and Non-local Stimuli

ADAPTATION	LOCAL STIMULUS MAINLY	NON-LOCAL STIMULUS MAINLY	BOTH LOCAL AND NON-LOCAL STIMULI
Kindergarten	10	0	6
Reorganized High School	2	3	23
Special Classes	2	2	22
Homemaking for Boys	8	0	2
Adult Leisure Classes	4	11	9
Extracurricular Activities	2	2	25
Elementary Final Examinations ...	6	1	13
Integrated Curricula	0	1	3
Supplementary Reading	2	0	15
All Adaptations	36	20	118

In sixteen communities with kindergartens, ten were produced purely by local stimulus. Homemaking for boys was introduced

exclusively through local stimulus in over three-fourths of the schools which had made the adaptation. These two adaptations were found to involve the greatest amount of participation on the part of local individuals. The kindergarten was advanced very frequently by parents. Homemaking for boys was the one adaptation in which any degree of interest on the part of students themselves had been brought into play. Aside from these two, most adaptations were the result of combinations of internal and external activity or external activity alone.

We must emphasize that this analysis does not invalidate the later observation that local units with favorable circumstances introduce changes prior to direct or indirect sponsorship by the state. This analysis refers to the great mass of districts which in the course of the development of the adaptation have made the change.

It appears, therefore, that diffusion in later periods is not exclusively a local phenomenon. Inducing circumstances from outside, at least, have been found a strong concomitant of the process in the past for the majority of districts. This seems an important deduction especially if future programs of state and regional control of education are to embody policies of continuing delegation of responsibility to local school districts and thus to adhere further to the policy of local initiative. For it is certain that adaptation in the local unit is neither inevitable nor autogenous. Theories of general and widespread self-energizing local initiative in education are not sound. As the authors have frequently pointed out elsewhere, if local autonomy is to be effective, the individual school district must be surrounded with conditions which will permit and induce local initiative to operate.

In examining the operation of the local unit itself in the process of adaptation we turn our attention first to the coordinating professional center, the superintendent of schools, or the supervising principal and his administrative staff.

The Incidence of Responsibility

With the administrative heads of the local school system must rest the responsibility for such efficiency or lack of efficiency as exists in the local unit, even though direct obstacles might be traced,

in case of individual changes not effected, to inadequacies of local community factors, financial and other economic limitations, or handicaps of improperly qualified teaching personnel. Since it is with all these matters that the local administration must be concerned, it might well be a proper attitude to take that any limitations of factors not directly administrative which restrict the adaptability of the local school, reflect upon the effectiveness with which administration performs its task. It is the responsibility of local administration to reach out into the community and to develop means of compensating for local circumstances which limit opportunities for expanding and improving the educational program. The local administration is not in a position directly to introduce reforms in the state program of teacher training or in the state legislative structure which influences the selection and recruitment of teachers. However, it is incumbent upon the local authority to make the best of professional materials left at its disposal and to introduce programs of in-service training and programs of supervision which will tend to offset limitations of the professional staff. This is particularly the case in states which have placed a large degree of control with the local unit. Viewed in this manner all aspects of the problem of adaptability as presented in this volume may be treated as aspects of local administration in so far as they are matters which can be remedied by local authority. It is the observation of the writers that few factors of local community economic, social and professional circumstances cannot be overcome by proper local professional leadership. A striking confirmation of the hypothesis is the school system of a poor western steel town which had been pulled up by the efforts of an energetic, skillful superintendent to a point far above any other Pennsylvania system which we rated.

The Administrator and Nine Adaptations

Table 30 and Figure 20 show the role of the administrator in the introduction of the nine adaptations studied. It will be noted that in more than half of the cases he had assumed the role of leadership. In only one of 183 possibilities had he been opposed to the adaptation. In only six had he been ignorant of its presence. In only 23 of 183 cases did he assume a neutral or negative role.

It is hardly conceivable that the superintendent could have been ignorant of any significant reorganization of the high school but it is possible that the development of adult leisure classes in the community might have been brought about without his knowledge. These are the two adaptations in which the superintendent is listed as being ignorant of the adaptation.

The superintendent's most positive role was played in the development of supplementary reading. In seventeen of the eighteen cases he took the position of leadership or strong supporter. His leadership role was also strong in reorganized high schools, special classes, extracurricular activities and elimination of elementary final examinations.

In the communities which have not made the adaptation, we may assume that the conception of most adaptations is in the climate of educational opinion and that interest is rather active in the community. In 12 out of 249 cases the superintendent is now actively leading in bringing about one or more adaptations, the greatest interest being in reorganized high schools and special classes. In 71 of the 249 cases the superintendent is above the level of neutrality, ignorance, or opposition. Interestingly enough, ignorance of the need for these adaptations is not entirely lacking since it is evidenced in 48 cases. The most outstanding cases of ignorance are in integrated curricula and in homemaking for boys.

In summary it might be said that while in our system the administrator is in a key position for initiating adaptations, the part he is playing is not a very glorious one.

Whether or not we are to view with favor the relatively high frequency with which adaptation originates with a single person, the superintendent of schools, is a question which cannot be answered here. There is no doubt, however, in the minds of the present writers, that a vast amount of adaptation could be taking place and the potential adaptability of our public schools could be greatly increased by devices which would improve the qualities of leadership of local school administration. The local administrator is in a unique position to take advantage of the resources of the community in a way which will effectively bring them to bear upon necessary reform. There are many illustrations of how the intelligence, imagina-

TABLE 30

Nature of Participation of Professional Administrative Head in Development of Nine Specific Adaptations

ROLE OF ADMINISTRATION	KINDERGARTEN	REORGANIZED HIGH SCHOOL	SPECIAL CLASSES	HOME-MAKING FOR BOYS	ADULT LEISURE CLASSES	EXTRACURRICULAR ACTIVITIES	ELEMENTARY FINAL EXAMINATIONS	INTEGRATED CURRICULA	SUPPLEMENTARY READING	To- TAL
Communities with adaptation:										
Leadership	5	20	21	1	—	21	16	1	14	99
Support	5	5	2	5	5	4	1	—	3	30
Followership . . .	5	1	2	3	8	3	5	3	1	31
Neutrality	1	1	2	4	6	2	—	—	—	16
Ignorance	—	1	—	—	5	—	—	—	—	6
Divided interest .	—	—	—	—	—	—	—	—	—	—
Opposition	—	—	1	—	—	—	—	—	—	1
Total	16	28	28	13	24	30	22	4	18	183
Communities with- out adaptation:										
Leadership	2	3	3	—	2	—	1	1	—	12
Support	5	7	1	—	3	2	—	3	4	25
Followership . . .	9	2	3	6	3	2	—	3	6	34
Neutrality	15	7	12	12	14	12	17	18	18	125
Ignorance	1	—	—	15	2	2	8	18	2	48
Divided Interest .	—	—	1	1	—	—	—	1	—	3
Opposition	—	1	—	1	—	—	—	—	—	2
Total	32	20	20	35	24	18	26	44	30	249
Grand Total	48	48	48	48	48	48	48	48	48	432

tion and initiative of the superintendent of schools has more than offset a great number of educational and social obstacles existing in the community to retard the process of adaptation. It has already been noted that the community which had made the greatest progress in total adaptation was a relatively poor steel town which ranked low on a majority of factors significantly associated with the capacity of communities to adapt.

It must be mentioned further that there are numerous aspects of

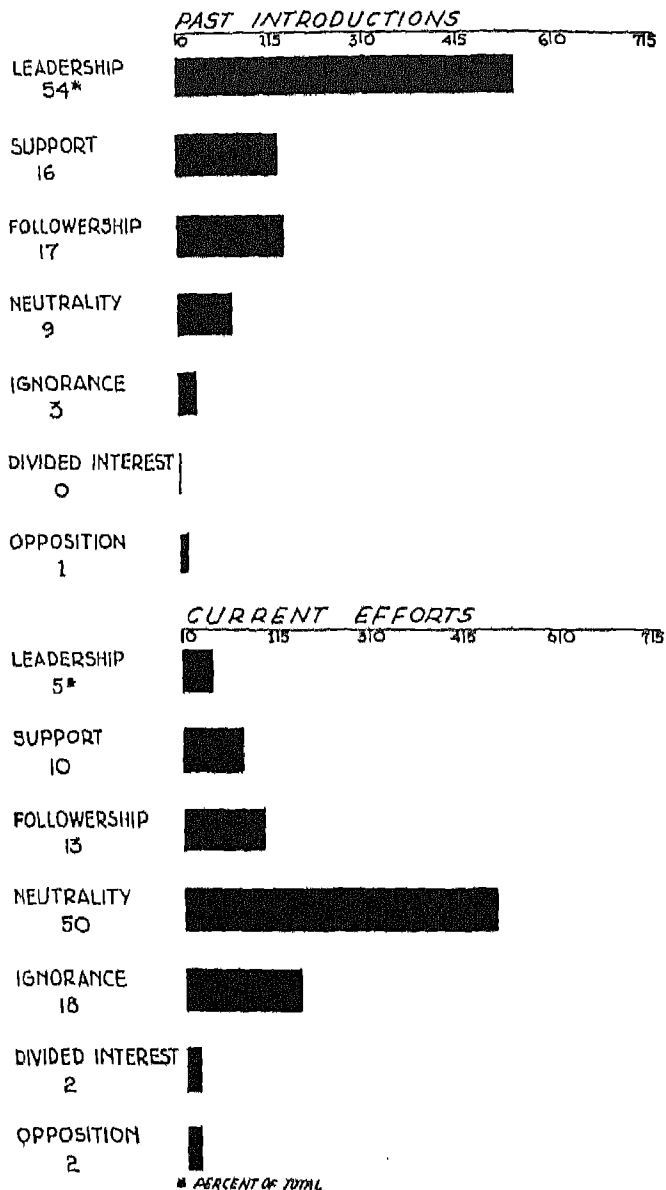


Figure 20. Nature of the Participation of school SUPERINTENDENTS in the Diffusion of Nine Adaptations

the structural organization of educational control in Pennsylvania, and in other states as well, which operate against effective local administrative leadership. In conferences with local administrators two rather common difficulties of control came to light. One has to do with the dual type of administration inherent in the present law. Original forms of administrative responsibility operated through the board of school directors through the secretary and treasurer. After the office of superintendent of schools had been created the framework of the former type of control was left on the statute books. Today, therefore, we find a division of authority and responsibility as between the professional head of the school system and the business heads, the secretary of the board and the treasurer of the board.

In some communities a network of local political machinery dominates both centers of executive authority. Most commonly, however, the educational head retains a latitude of responsibility within "educational" matters in so far as they do not involve finance. In the business management aspect of local administration the system of political spoils strongly operates against constructive professional advance. Our surveys revealed numerous instances of purchasing, engaging employees, administration of plant and other expenditure activities made entirely without thought of the best interests of boys and girls.

It must be mentioned that within the state law there is great freedom for the local board of school directors in meeting this situation. It is largely within its power to determine responsibilities of its secretary and the superintendent or supervising principal. In some cases boards elected by non-political means have gone far in making the local superintendent of schools the chief executive officer. However, the pall of local political intrigue is often far reaching. In some cases superintendents report the feeling of being "puppet" administrators. Even teachers in their systems, they say, placed by political job holding methods, have lines of control more powerful than their own.

This leads us to a second difficulty reported by local administrators, the question of tenure. The new tenure law in Pennsylvania placed all teachers on tenure. In smaller districts operating under the county setup, supervising principals also enjoy the protection of

tenure. Superintendents, however, do not. In feeling the pressure of the situation of misdirected political control coupled with vulnerable security there has been much agitation among superintendents for their own tenure protection.

In addition, one cannot overlook the importance of lack of initiative on the part of the professional staff. After all, the effective educational program is one which operates only in communities with teachers possessing those qualities of initiative, breadth of professional training, and intelligence which make possible continuous day to day adjustment of educational programs. In a later chapter evidence appears that there is a lack of depth in the professional philosophy of teachers. It is exhibited by the things they do and the things they would like to do. This is only a part of the evidence that the great majority of our professional workers are either not capable or have not been given the opportunity of operating within that realm of freedom which is undoubtedly essential to the attainment of a desirable level of adaptability.

Viewing the handicaps of the administrator's position in the local pattern of control of things and the personal political and professional obstacles which he encounters as local problems, it appears that authority and control are at times gained at the expense of adaptability. This is in great part a problem the solution of which is in the reach of the local administrator. Quite evidently, the future program of implementing desirable change in a public school must concentrate not only on the administrator but on the degree of freedom from dictation with which the whole professional staff operates. In this respect it is unfortunate that so much of the initiative comes from the superintendent of schools and so little from other members of the professional staff, but for the fact that as a whole there is so little initiative exercised, by anyone, including superintendents.

The need for changes in the personal and professional qualities of teachers themselves is apparent as one examines the extent to which they have participated in processes of adaptation. As indicated before, this is due in part to the lack of ability, in part to lack of professional competence, and in part to lack of opportunity. It is nevertheless rather startling to find that in communities *which have not*

made the adaptations, teachers are usually in a position of neutrality with reference to them. In a great number of cases the teachers are actually unaware of the conditions and the problems demanding the change and the various adjustments which schools in other places have undertaken to meet these demands. The teachers take a leading role in special classes in some communities in which this adaptation relieves them of the burdensome responsibilities of providing individual attention for the mental deviate.¹ A good proportion of schools providing homemaking classes for boys do so through the activities of home economics teachers alone. Occasionally teachers participate directly in vitalizing the extracurricular program or developing bases other than the examination for promoting elementary school children. But the teacher has not been an important participator in processes of change involving our nine adaptations. The professional staff has frequently operated negatively and passively as an obstacle to change. This is indicated by the fact that, as with other participants in communities that have not made the change, there is a high frequency of individuals taking a neutral stand, or taking a stand involving complete ignorance of the change.

According to the superintendent, the most prevalent obstacle to curricular integration and a general improvement of instruction in the senior high school in the direction of experiential teaching has been the inadequacies of staff. It is undoubtedly true, as some superintendents have said, that the success of such a program depends very largely upon the training of personnel to do the job. In schools in which this objection was raised, the nature of instruction observed indicated very clearly that there was much truth in this explanation of superintendents. It may, of course, be over-emphasized that through leadership and in-service training on the job only is it possible to introduce reforms which so largely depend upon the resourcefulness of teachers, especially when school systems are heavily loaded with inadequately trained personnel on tenure. Nevertheless, the most encouraging hope for reform in this direction lies in a zealous professional leadership of a type which will stimulate cooperative self-education throughout individual

¹ Cf. *infra*, Chapter XI.

school systems. With our present legal structure protecting teachers, it is fruitless to look only to solutions which would replace them. Indeed, we must bear in mind that the rut in which many of our teachers have found themselves, is in large part due to the unstimulating type of administrative leadership which they have had.

To the extent that community opinion is an important correlative of successful innovation in the public schools, the relative infrequency with which parents participate in the process of adaptation is to be assessed as exhibiting the failure on the part of leaders to utilize to fullest advantage the energizing and creative forces of the community. With the exception of direct interest taken by parents in the kindergarten and adult leisure classes, the predominating status of the laymen with respect to our nine adaptations is one of complete ignorance of the educational problems involved. It is perhaps significant that this is more apparent in communities *which are not adaptable*. The same is true, but to even a greater extent, of the participants most intimately involved. Here they are the pupils themselves. The pupil is seldom, in spite of great advances in our professed philosophy of education, the focal point of the change. He rarely has an opinion and he rarely is asked to form an opinion on the matters involved. In only two adaptations have pupils had direct influence of some consequence, one involving homemaking classes for boys and the other extension of extracurricular facilities.

Administration as a Retarding Influence

Of more than 2,400 statements of "obstacles" to needed changes in forty-eight communities visited by field workers, some 1,700, or 71 per cent, directly involved administration. There is, perhaps, a tendency for the respondent or interviewee to "pass the buck," so to speak, by placing the blame on the other fellow. In the present case the teacher was the respondent, and his tendency to blame administration might present an exaggerated picture of the situation. Indeed, evading responsibility by placing blame elsewhere is one of the unfortunate indications of a lack of coordination and harmony among individuals and agencies. Professional people tend to find fault with the community, groups and classes within the community blame each other, administration feels handicapped

by the teaching staff, and teachers feel limited by the type of administrative leadership. However, a study of the nature of the criticisms of administration by the teacher is a useful means of discovering probable types of deficiency in leadership.

The first means by which teachers' opinions of administration were determined was through the question asking what they thought were needed changes in the school system. Administration itself was thought to be among the areas in which changes were needed in local school systems. The proportion of all types of changes recommended by teachers which were directed toward the local administration varied from 5 to 37 per cent in individual communities. The more the administration the greater the relative frequency of changes in administration recommended by teachers. This tendency was marked, but not highly significant statistically. In industrial communities about 23 per cent of the changes which teachers thought were needed in the community had to do with administration. For residential communities this figure was 22 per cent, for composite communities, 20 per cent, and in rural communities in which the teacher must fit into a much less complicated matrix of administrative organization, the percentage was only 15. This measure was found not to be correlated with the adaptability of schools ($r = .105$).

A decidedly different relationship between administration and adaptability is revealed, however, by means of the measure of the extent to which teachers reported the administration among "obstacles" to needed changes, whether the changes fall in the realm of administration or in some other area. The second question useful in determining local professional judgment on administration asked what obstacles teachers thought were standing in the way of needed changes. In individual communities the proportion of all non-financial "obstacles" listed by teachers which dealt with administration and supervision varied from 5 to 68 per cent.

In this case, as before, objections to administration were greatest where there was most administration. On the average, in rural communities, only 17 per cent of obstacles dealt with administration and supervision. In other communities, administration was indicated to be a barrier to the extent of 26 per cent in composite com-

munities, 32 per cent in residential communities, and 40 per cent in industrial communities. As a whole, the correlation between these percentages in individual communities and the adaptability of communities was zero. When this relationship was sought, however, for communities of comparable structural circumstances, size, wealth, and geographical location, it was found to be significantly negative ($r = -.407$). In other words, among communities which are similar with respect to such basic factors as size and financial resources, the greatest administrative resistance to change is felt by teachers in communities making the most change. This is to be interpreted neither as a reflection upon the quality of administrative leadership in adaptable school systems, nor as a basis for judging teachers in these school systems as lacking sympathy and understanding of the local program. It is something of each.

Causes suggested by teachers for restriction of educational development by the administration fall roughly into two general categories, one having to do with incompetence of administration and the other with failure of administrative devices to facilitate the work of the classroom teacher. Teacher reaction to administration as it is related to adaptability is important for two reasons: first, it tends to reveal the types of administrative circumstances which are least conducive to adaptability and, second, whether the criticisms are justified or not, it reveals the types of impressions which are emotionally disturbing to the classroom teacher. For this reason we present at some length a number of the typical reactions of teachers to our question: What in your opinion have been the chief obstacles to these changes?

ADMINISTRATIVE COMPETENCE

There are two categories of administrative circumstances which are closely associated. One of the most frequent criticisms of administration is the extent to which it is swayed by political influences. Associated with the issue of "politics" is the notion of the general incompetence of administration, both as to board membership and professional executives, in handling educational problems and in establishing a policy based on educational criteria rather than exigencies of political expediency. Perhaps a successful ad-

ministrator is to be judged competent only in so far as he is capable of handling successfully the many political pressures which he encounters. In this sense, therefore, the criticisms of politics in the schools and the criticism of incompetence of the administrators go hand in hand.

The political criticism is not limited to the participant who occupies the position of administrative authority in the school district, because it is from elements in the community itself that political issues arise. This is illustrated by a reply of one teacher who lists the following as a reason for lack of progress in her school system: "Political haggling—red tape—the Blank Coal Company—taxpayers association." Another teacher in the same school system said, "Political interference is probably the chief obstacle to any changes." And still another wrote, "Threats of politicians." Another teacher in the same district pointed out the influence of "politics" and "the taxpayers association" and added "school directors who are not qualified for the work."

A slightly different slant is suggested by teachers who feel that administration is influenced by motives of personal gain rather than desire to provide good education. As one teacher put it, "administration has been political instead of educational." Of one superintendent, the implication of an excessive motive of self-gain was implied in the statement, "The desire of the administration to stay on the good side of the public." Another teacher in the same community listed this superintendent as a retarding agent "because the more money he saves the more raise he gets in the form of a bonus from a district dominated by the Blank Corporation." Perhaps the professional staff of the schools is entirely justified in placing responsibility upon administrative heads for the proper treatment of such undesirable political controls.

The teachers scored administration with general lack of competence and ability and quality of courage and leadership in terms not directly associated with the issue of politics in the schools. One teacher reported as an obstacle to change, "School authorities are not acquainted with *facts* going on in classrooms where teachers fear to make known the laxity of principals to cooperate on teacher-pupil problems." Another placed responsibility on the administra-

tor along with other professional workers when she listed as an obstacle, "Tradition—lack of one teacher, administrator, or supervisor who is willing to take a chance." This type of thing was implied in another way by one teacher who listed "educational lethargy" and "administrators more interested in their own advancement and job than in educational needs." In another case the school board member was the focus of such charges, when the cause was said to rest with "members of the school board who are unfit for positions requiring technical knowledge," and "the failure of men with ability to run for school directors and leave the administration of schools in the hands of school administrators."

But administration affects the teacher in many ways by establishing or failing to establish satisfactory conditions for successful educational reform. In many ways teachers charge administrators with lack of sympathy and understanding of the teacher's point of view and the nature of the problems she faces. According to one teacher they "really do not know of the amount of work involved and know nothing of how it cuts in on our teaching time."

Another teacher felt that the school board in her community was "narrow-minded," and that the superintendent "did not have the welfare of the teachers in mind." Another implied lack of administrative sympathy when she attributed failure of the school to undertake certain changes, to "under-evaluation of the teacher's ability to study facts for himself."

In many instances the administrator has a special hobby and instead of influencing progress in all areas of the educational program he over-emphasizes one particular aspect at the expense of the others. One teacher reported that school administration in her community "thinks it more important to pay a coach an exorbitant salary, to say nothing of the salaries of supervisors, than to give the elementary teacher a living wage."

Lack of harmony between the board of education and the superintendent, or between board members themselves, or between the superintendent and other members of his administrative staff, is a frequent cause for complaint. In one community a situation found by community visit was accurately reported by one teacher in these terms, "When superintendents and principals have been elected,

the board is quite often divided and some agree with the principal, others with the superintendent."

Another consideration which deserves rather serious attention because of convincing evidence of the degree to which it retards adaptability, has to do with lack of stability in administrative policy. This is frequently reported by teachers in communities having a high rate of turn-over of superintendents. The situation is portrayed by statements of the teachers themselves, such as the following:

Change of superintendency every four years with almost as frequent change of principalship has weakened the educational set-up and retarded growth of the school system to such an extent that the result is felt by the student body itself. Better cooperation of school board and superintendent is *most* essential in if "we" expect the school to progress. At last election of a superintendent, there was community opposition to such an extent that townspeople distributed a petition to have the educational leader retained, but failed.

Lack of supervisory leadership and lack of administrative organization conducive to effective teaching are other charges which administration in many communities must face. There are many circumstances which produce reactions of this type among the teachers. The following illustrate some of them:

Negligence which results from an administration that has failed to be progressive, places too much responsibility on a familiarly known faculty—which tends to have each teacher do as he or she pleases. The results are an aimless, disorganized course of study. Organization of courses is as important as, if not more important than, any other administrative duty.

Too much time taken up with other things. Inability to "get around" to individual help. Pupils are usually willing to stay after school for extra help, but the long school day leaves both teacher and pupil so exhausted that mental efficiency is retarded. Inflexibility of system, perhaps.

Employing supervisors who are inert and unskillful. Giving supervisors responsibility without power; should make supervision more definite.

Give the principals full-time secretaries, so they will have time to help their teachers.

Supervision by at least six people in as many subjects expecting the teacher to arrange her work according to their wishes which results in absolutely no correlation in subjects or freedom in teaching.

We have been forced to follow a daily program so that every grade will be doing the same thing every minute of the day all over the town.

Long, formal tests must be passed with satisfactory grades resulting, else both teachers and pupils suffer. So long as this tradition lasts the teachers will teach for tests. Formal recitation has been overstressed. Some testing is necessary, but it has hung too heavily as a measuring stick.

Too much experimentation with too little coordination. Either insufficient number of people in supervisory capacity or too much work for those in that capacity.

The extent to which these criticisms are defensible depends somewhat upon whether criticism is directed toward the board member or the professional administrator. As a whole, it appears that the board member has a point of view less favorable for educational change than the professional administrator. The questionnaire "What Should Our Schools Do?" was answered by 125 administrators and 69 board members from various communities in the state. The median level of opinion of board members as indicated by this questionnaire was slightly higher than that for parents and citizens as a whole. The average score for board members was 66; for parents and citizens in general, 64; for teachers, 76; and for administrators, 79.

It appears, therefore, that teacher criticism of the type referred to above is more applicable to board members than to professional executives in so far as the question of sentiment and attitude is concerned. In spite of this criticism, the administrative group as a whole seems to be the one which, on the average, reaches the highest level of acceptance of the demands of change in education. There is a wide gap between the executive professional group and

lay members of the board of education. Eighty-seven per cent of the professional administrative group exceed the median score of board members.

ADMINISTRATORS AT WORK

When we view administrators at work we observe them in two roles: (1) keeping the machinery operating, and (2) exercising influence with respect to the nature of the grist that the machine grinds. One can see there is justification for a state department of education, and perhaps for a teacher-training institution, in the first field alone. Even though he might wish for a larger emphasis on the second function, he can see that the first is one of primary importance. Perhaps in the large city there is justification for strong emphasis on the first function, but one which should never be allowed to displace the second. In the smaller community there does not appear to be need for a local school inspector. If inspection is all that is needed it can be done much better by inspectors from the state education office. Yet many local school administrators perform no other function. The writers believe that the primary function of the local administrator, with the exceptions noted above, is the second function—the one that centers in adaptability.

Local initiative, defended either in terms of democracy or in terms of adaptability, is tied up with the idea of making local decisions with respect to the grist to be ground. The superintendent who sees himself as a sort of lengthened arm of the inspectorial system of the state department of education is not performing this function. A large number of district schools undoubtedly would be run just as well and local initiative would be as fully exercised (that is, not at all on any matter of consequence) under a state centralized system. A solution for this state of affairs lies largely at the door of professional leadership in general. The writers believe that there has been too little emphasis in training local school administrators in their unique function. How far school administrators depart from this primary function can be illustrated by examples, most of which reveal the existence of a stereotype of the function of the administrator radically different from that which seems to be implied by the structural organization of the school

system. Most administrators have taken one small aspect of the whole job; few have seen the job in all or any large part of its aspects.

Some administrators were observed who recognized and frankly exploited the possibilities of their position for building up a loyal constituency. Sometimes it is for the purpose of running for a public office; more often it is rationalized by the statement that "If I do not keep my job I will not be able to do any good." Others take so seriously the necessity of winning friends and influencing people, among the parents particularly, that it becomes the end instead of a means for bringing about support for better schools. In one school, for example, special classes for the mentally handicapped were dropped partly to protect the cordial relationship between school and parents. Some administrators like to travel along with progressives without really accepting any modernizing movement in a wholehearted fashion. They frequently do this by supporting one particular adaptation, leaving the rest of their school traditional in most respects. Thus they can say, "See, I am progressive," although their interest in adaptability is a very thin veneer.

Many administrators have a series of concepts or stereotypes which they trot out on every possible occasion. They are certain that they know what the board won't do and what particular members won't stand for. They can tell you readily that the community will not stand for this or "We would not dare to mention this in this community." This statement is not to be taken as being opposed to an understanding of school boards and teachers and pupils, but rather as an attack on the too easy classification built up without sufficient study of details.

The emphasis on the inspectorial function—concern with seeing that nothing untoward happens—is quite common. A frequent expression of this method of control was that of "sitting on the lid."

A large number of the administrators encountered in the study were much concerned with regularity, punctuality, order, and neatness. Several were greatly absorbed in the new public address system with which they could make announcements to students. The attitudes of superintendents toward teachers are varied—some encouraged the presentation of new ideas, and others tended to make

the teacher feel out of place with any change which should be made. In only a few instances were techniques observed for systematic discovery of possible contributions of members of the staff to new proposals. Naturally in those cases where the emphasis was inspectorial, there would be little interest in the development of such techniques.

Administrative Organization and Adaptability

A wide variety of administrative arrangements have a bearing on adaptability. An illustrative group of these are described below. One is struck with the vast, interacting network of influences which administrative setups put in motion. Personality factors are subordinated here, though not neglected.

INTERNAL DIFFUSION INTERFERES WITH FURTHER ADAPTATION

When administrators have the main responsibility for introducing adaptations and diffusing them within the local system, the task of pushing diffusion can soon sap their energies and retard the introduction of other adaptations. Especially is this true in the larger school systems with a number of coordinate administrative positions—several principals and supervisors. One supervisor has been working for thirteen years on extending the use of movable furniture in the primary grades and eliminating subject-matter specialization in grades 4, 5, and 6. She is far from achieving complete diffusion of these simple beginnings of an "activity program."

The difficulty of diffusion within the system also has a retarding effect on inventive teachers. They cannot get their ideas recognized readily by administrators who are taken up with the problem of getting some of the earlier adaptations more widely spread.

TEACHING PRINCIPALS VERSUS FULL-TIME PRINCIPALS

A supervisor reported that teaching principals seldom objected to her suggestions for change. Resistance usually came from full-time principals. If this experience is typical, we may see here what characteristically happens when, in this culture, someone—especially a man—is elevated to a position where exercise of authority is his chief function. A frequent reaction to this situation is that

the person in authority takes up the idea that he or she "knows how to run *his* school." The work of the teaching principals is still primarily teaching and possibly most of them do not consider themselves coordinate with supervisors. Whether or not the institution of the full-time principal must be kept on other grounds, it is probable that it frequently results in attitudes not receptive to suggestions from coordinate officers, or, in many cases, from supervisors.

FACTORS IN THE SELECTION OF ADMINISTRATORS OF SIGNIFICANCE FOR ADAPTABILITY

Men are usually given preference over women for important administrative positions. In the Pennsylvania communities studied there has been only one woman superintendent of schools in decades. Until recently men usually taught mathematics and science. Thus it happens that most administrators have a background in mathematics and science. This background does not usually provide them with information or stimulus to see the broad objectives of modern practices. It puts a premium on abstract, impersonal, detailed precision. Furthermore, mathematicians, like other subject-matter specialists, often "stick together." Thus in one system administered by male mathematicians, most of the women raised above the rank of teacher to supervisor or principal were found to be former mathematics teachers. One of these had become a guidance director in a high school. Although personally charming she had no psychological background to qualify her for the job. For example, when students were badly shocked by a divorce or a death in the family, she carefully avoided talking about it for a number of weeks "in order to let the wound heal."

CLASS SIZE AND ADAPTABILITY

An area in which administrative leadership is seen to bear upon the effectiveness of the work of the teachers has to do with class size. Among administrative difficulties reported by teachers, the question of teaching load is frequently listed. It seems reasonable to expect that over-loaded teachers will not be receptive to demands of adaptability within the sphere of their own classroom work.

A rough check on the importance of teaching load was found a disappointing test of the degree to which class size, at least, is the factor contributing to adaptability. No attempt was made in our work to find a comprehensive measure of teaching load. However, a simple community measure was obtained merely by dividing enrollment by the number of teachers in the district. The result was a measure of the pupil-teacher ratio in the district. This measure was found to have a slight negative relationship with adaptability ($r = - .194$). In other words, the anticipated outcome tended to hold true.

For the most part, districts with small numbers of pupils per teacher tended to be the most adaptable. However, when the influence of size and economic resources was screened out, we found that the slight negative relationship observed may be completely attributable to differences in class size between large and small districts and wealthy and poor districts. Indeed, the small districts which are least adaptable are those with the smallest class size. We know, of course, that this fact confuses the issue. By statistical methods, therefore, we treated all districts with a correction for differences due to size of districts and wealth. The outcome indicated a correlation between class size and adaptability, but in the opposite direction; that is to say, among districts of comparable size and wealth, those with a higher class size tended to be more adaptable.

The meaning of these results may be found not in the statistical coefficients themselves, but in a review of some of the highly important correlatives of adaptability discussed elsewhere in this report.

From the standpoint of administration, it appears that leadership is required in other areas than in the mere mechanical aspects of organization, such as reduction of class size. As one will see later, in the chapter on teaching personnel, there are many important fronts upon which administrators work with the human aspects of personnel, their attitudes, their motives, and the like.

We must, of course, point out that our observations on the contribution of pupil-teacher ratio to adaptability do not in any way prove that the most effective type of educational program devised

today might not necessarily be one with a small number of pupils per teacher.

PLACE OF EXPERIMENTATION IN THE TOTAL ACTIVITIES
AND INTERESTS OF ADMINISTRATORS

Experimentation is often regarded by administrators as one of those peripheral activities which can be shoved aside—always with the thought of “doing something along this line soon”—to make way for the more urgent duties of caring for discipline cases, buying supplies, arranging programs, and so forth. In one junior high school a faculty research committee of a year’s standing had produced nothing. The supervising principal said that in view of their extra duties, keeping discipline in the halls, serving as faculty hosts, serving on various committees, and so forth, he did not feel justified in urging them to get busy and produce plans for new practices. This principal placed an unusually high value on orderliness and used up a great deal of his teachers’ time and energy in patrol of halls. But most administrators could be expected to succumb to the temptation of putting their routine and ceremonial functions ahead of the intolerable burden of original thinking. A high school principal who had freed himself from routine duties to think had great difficulty in achieving and maintaining this freedom. It might be desirable to separate the functions of routine administration from responsibility for adaptability—to give the former to a “figure-head” principal and the latter to curriculum coordinators and other supervisors.

PROMOTION FROM WITHIN THE RANKS

Promotion from within the ranks often results in a situation adverse to adaptability when the person promoted becomes either coordinate with or superior to his former superiors. In one of the larger systems a primary supervisor had been a grade teacher subordinate to the present art and writing supervisors. These supervisors have on various occasions reported her as interfering with their objectives. The art supervisor objected to many of the drawings in the primary grades because they were so crude. The writing supervisor wanted complete control of vocabulary.

In another system there has recently been considerable competition among persons within the system for the office of superintendent and other administrative positions. Some of the defeated aspirants barely lost out. Those who won are still somewhat apprehensive about staying on top. The result is a lack of friendly give and take among the members of the administration and between the administration and a number of ambitious teachers. There is a great deal of constraint among most of them, and it may well be that this constraint comes in part from the realization that it is not wise to appear to be climbing too rapidly and in part from the hostility generated in those who were defeated.

Situations like this have been prevented or ameliorated in a number of ways. Sometimes a man outside the system is brought in for an important position on the theory that competing aspirants will get along better if none of them gets the position. In defending the appointment of an out-of-towner as principal despite an array of local talent, a board stated that the appointment of a local man might disturb the existing harmony. When a candidate is once chosen there is often an attempt to create the impression that he was a logical or superior choice.

DIVISION OF POWER AMONG ADMINISTRATORS

In the larger systems especially, but to some degree in nearly every school, there is an ill-defined, fluctuating, and conflicting division of power among the administrators. In many cases a particular division of power, taken in connection with the personalities involved, was impeding adaptability. Especially troublesome were the relations between the coordinate administrators—grade supervisors, subject supervisors, and supervising principals.

A certain health supervisor is a specialist in lighting. Good light in her view is the fundamental condition of education. The best light is light over the left shoulder. Accordingly she sent out an order to have all desks put in rows at such an angle that light would come over the left shoulder. This change of course interfered with pupil freedom, informality, projects, and other adaptations. The primary supervisor objected that social and mental health have a place alongside physical health and must not be subordinated.

Whereupon the health supervisor retorted that she knew more about social and mental health than anyone in the system. The teachers who were trying to carry on an activity program with all the light coming over the left shoulders of their pupils were found to be in a "state." After the two supervisors had reached an impasse some of the teachers who had decided preferences or aversions for one of them used this conflict as a basis for cooperation with the supervisor they liked better. Others tried to reconcile the conflicting orders by giving way a little in both directions. Others kept shifting from straight rows to informal seating arrangements and back again as each supervisor came around. The effect of all this on the receptivity of teachers to new ideas may be imagined.

SUBJECT-MATTER LOYALTIES

Among the many instances in which the subject-matter loyalty of supervisors stood in the way of adaptability, one will suffice to suggest some hypotheses about this well-known phenomenon. An English supervisor outlined so many required readings and exercises in such minute detail that almost no freedom was left to the English teachers to experiment. The suppression of adaptability was particularly evident in the foreign section where the problem of teaching English to students who spoke foreign languages in their homes was challenging several teachers. They complained that they could not experiment with material better suited to this situation. Instead they had to devote all their energies to figuring out ways to get these students interested in the required Shakespeare readings—which was the great stumbling block.

It is not merely the complicated phenomenon of subject-matter loyalty which is at work in subject supervision. There are always a number of "weak" and lethargic teachers. Supervisors frequently worry so much about keeping these poorer teachers up to a certain standard that they burden the experimental teachers with rigid requirements that stand in the way of adaptations. The practice of exempting a number of reliable and experimental teachers from the general requirements would help adaptability to a great extent.

Occasionally supervisors combine great subject loyalty with broad

tolerance. An art director—a well-known artist in his own right—does not approve the objectives of an activity program in which drawings are often very crude, but he lets teachers go ahead using art materials in ways which he personally does not approve.

More typical, perhaps, is a vocational director who for many years refused to requisition tools for the elementary grades on the ground that the children misused them.

IMPORTANCE OF ORGANIZATION

These and other field observations suggest that nearly all elements of a school system are so interdependent and interrelated that almost any division of power among administrators is likely to lead to conflicts that demoralize teachers and in other ways hinder adaptations. No system is going to result in perfect harmony, but the division of labor among supervisors on the basis of subject matter—English, history, and the like—is a particularly anti-adaptable structural feature because the frequent reaction of individuals to such a situation is strong subject-matter loyalty. Division of labor by age levels of students seems more conducive to a child-centered viewpoint, for the supervisor would be responsible not for this or that subject, but for all the experiences of the children at a certain age level.

In any case, in school systems large enough for organization to be important, it certainly appears that loosely defined administrative organization is detrimental to educational progress. One should not attempt to develop principles of organization where obviously the local solution must depend upon many unique considerations of available personnel and the local situation. As general policy it appears, however, that adaptability is favored when two extreme types of organization are avoided. In the first place, the multiple or dual type of organization, referred to earlier in this chapter, impedes action by too sharp a division between executive authority and responsibility. A modern educational program is not to be built upon segments—financial, supervisory, curricular—but upon the complete complex of plans, procedures, human aspirations, actions, and the like, which make up the school. In the second place, over-centralization in the superintendent's office operates

against adaptability because of the evident need for division of labor in accomplishing widespread educational progress within the system. The one-man-operated school system will be only as adaptable as the one man and the effectiveness with which, through whatever line or staff organization he sets up, he can reach the many areas of educational service within the system. Adaptability in most schools will be found to suffer not from over-organization but from no organization at all. It appears from our study that the trend toward delegating functional responsibilities and maintaining control not so much through a line of responsibility, but through coordination and leadership, is that form of school organization most conducive to adaptability. As before, the professional and personal qualities of the leader are of paramount importance.

Summary

In nearly 90 per cent of past adaptations, the superintendent has taken an active part as leader, supporter, or follower. In 55 per cent of the cases his position has been that of leader. With respect to adaptations not yet introduced, superintendents are actively engaged in 30 per cent of the cases, but as leaders in only 5 per cent of these cases. Their records are far in advance of any other group.

Change of the administrative personnel constituted from 5 per cent to 37 per cent of changes thought necessary by school teachers in the communities studied. The measure was not found to be significantly correlated with adaptability. It was slightly positive for all schools and slightly negative when the influence of size and wealth was removed.

The administration was reported by teachers as an obstacle to needed change least frequently in districts with least administration—in the rural schools. The relationship between this measure and adaptability when the influences of type of community, size, wealth, and geographical location were removed was significantly negative. That is, where the most adaptation has taken place, there is more feeling on the part of teachers that the administration is an obstacle to change.

Administrators' competence is questioned by teachers in making

the charge of "political or selfish administration" on the one hand, and lack of courage and leadership on the other.

In their awareness of current needs, administrative officers as a group stand above teachers and far above school board members and members of the public at large.

Administrators in general are not aware of or do not accept the exercise of influence to keep schools adapted to new needs as their unique function. The inspectorial function is paramount in the work of most of this group.

Administrative patterns and policies frequently reduce adaptability. Centering attention on past adaptations to the exclusion of new ones, the conflict between administrative and supervisory officers, such as subject supervisors and principals, the selection of administrative officers with backgrounds in mathematics and in physical sciences rather than in the social sciences, the never-ending succession of small administrative duties, promotion within the ranks, manner of dividing responsibility, and the emphasis of subject matter rather than levels in the appointment of supervisors, all seem to reduce adaptability. Perhaps this is inherent in any administrative set-up necessarily concerned with the administration of the great mass of things as they are, but there are indications that the conflict can be reduced.

CHAPTER X

Participation of School Boards in the Adaptation Process

IN THE previous chapter we discussed the role of the professional leader in the adaptation process. The professional executive, however prominent his position may be in the development of education, is an agent of the local board of school directors. With the local school board rests full legal responsibility within matters delegated to it by the state legislature, for the control of the schools. In theory, the school board is a policy-forming body delegating detail to the superintendent and his professional staff. As noted in the last chapter, superintendents are limited in fulfilling their role of chief executive officer of the board and for certain matters in many school systems control in great professional detail rests with the board of school directors. In all cases it is through the board of education that the citizens of a community express their wishes in forming the educational service which the community wants and needs. For these reasons we turn now to a view of the local unit oriented about the board of school directors.

In studying histories of the introduction of the nine adaptations in the individual communities, an attempt was made to classify the processes involved in terms of whether the change took place primarily within the limits of the professional organization of the school and its pupils, or whether the precipitating influence was derived from potentializing forces in the community life itself.

In the kindergarten adaptation, precipitating influences were most frequently found to be extra-educational, that is to say, arising from demands of the society within which the school was operating. We frequently found that parents themselves demanded the introduction of the kindergarten. In the case of adult leisure classes, a tremendous increase in the rate of expansion of this adaptation resulted from the Federal Emergency Program. A great number of communities in our small sample had made this adaptation as the result of the emergency program. It was not surprising to find, for

this reason, by a rather liberal classification of processes, a bare majority of communities which might be considered to have made this change from initiative outside the local professional organization. Aside from these two adaptations, rarely was an educational change made in response to demands from without the local educational organization, the school board, the administrator, the teacher and the pupils.

In our field work the influence of the board of education as well as that of the superintendent or principal, teachers, parents, pupils, and local groups was classified as carefully as possible in terms of degrees of influence ranging from definite opposition to the movement to direct activity resulting in initiating the movement. In communities which had not made the adaptation, the same classifications of the participants were made in terms of the present position of the various potential participants to the possibility of change in the future.

In Table 31 and Figure 21 is presented a tabulation of the classifications of school boards in forty-eight communities in terms of degrees of influence.

The typical participation of school boards in making those adaptations already taken on was that of followership. The next most frequent position was that of ignorance. Leadership appeared in only 8 out of 183 cases; active support in 23. With respect to the 249 possibilities for adaptation not yet effected, the typical position of school boards is ignorance. Leadership appears in only two instances.

This result may be attributed to two causes. In the first place, boards may be properly delegating educational matters to the professional people in the local unit. On the other hand, because of lack of initiative on their part, or lack of advice from the professional leader of the schools, they may not be exercising fully their responsibilities of stewardship.

In many instances the board of education is too willing to concern itself exclusively with school plant and finance. In one community the relationship between the board and the superintendent was expressed something like this: "You let us handle the tax rate and budget and the business end of this thing and we'll leave the

TABLE 31

Nature of Participation of Board of Education in Development of Nine Specific Adaptations

ROLE OF BOARD OF EDUCATION	KINDERGARTEN	REORGANIZED HIGH SCHOOL	SPECIAL CLASSES	HOME-MAKING FOR BOYS	ADULT LEISURE CLASSES	EXTRACURRICULAR ACTIVITIES	ELEMENTARY FINAL EXAMINATIONS	INTEGRATED CURRICULA	SUPPLEMENTARY READING	TOTAL
<hr/>										
Communities with adaptation:										
Leadership	3	2	2	..	..	..	1	..	..	8
Support	2	12	3	..	3	..	1	..	2	23
Followership . . .	9	12	14	..	10	8	3	..	10	66
Neutrality	1	2	5	2	9	6	5	1	2	33
Ignorance . . . .	..	..	4	11	..	16	12	2	4	49
Divided interest .	..	..	..	..	..	..	..	1	..	1
Opposition	1	..	..	..	2	..	..	..	..	3
Total	16	28	28	13	24	30	22	4	18	183
<hr/>										
Communities with- out adaptation:										
Leadership . . . .	..	1	1	..	..	..	..	..	..	2
Support . . . . .	..	2	1	..	2	..	..	..	..	5
Followership . . .	7	3	..	1	6	2	2	..	2	23
Neutrality	10	6	6	2	10	1	..	1	7	43
Ignorance	5	4	10	31	5	15	24	42	21	157
Divided interest .	4	2	2	..	..	..	..	1	..	9
Opposition	6	2	..	1	1	..	..	..	..	10
Total	32	20	20	35	24	18	26	44	30	249
Grand Total	48	48	48	48	48	48	48	48	48	432

rest to you." As indicated below, some board members, particularly business men, justify their membership on the board because of their business experience. Many of them feel that they have a thankless job. They are not paid for it. They are busy people and cannot devote much time and energy to their responsibilities in the instructional areas.

Whether, under our present form of local control of education, the function of forethought and planning is the responsibility of

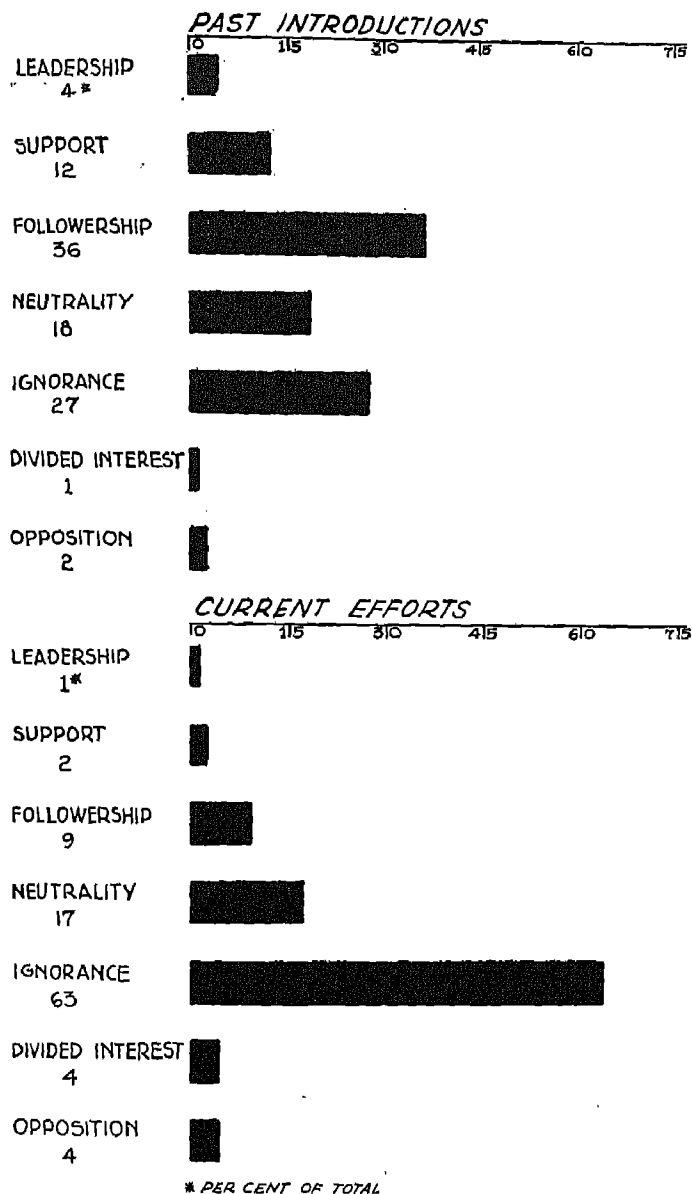


Figure 21. Nature of the Participation of BOARDS OF EDUCATION in the Diffusion of Nine Adaptations

the local administrator or that of the board of school directors, it is nevertheless true that as a policy-forming body the board stands in a key position for stimulating educational progress through the type of stewardship which it practices. If it demands well-prepared evidence for changes in the budget or changes in policy, it tends to stimulate, if not require, professional forethought and planning. This should encourage adaptability. If the board cleans its hands of "educational" affairs, it is not exercising its legal responsibility, nor is it encouraging educational adaptation. Some superintendents and principals expressed the sentiment of welcoming this *carte blanche* for the opportunity it offered them to go ahead with their programs. But it is to be pointed out that administratively this arrangement is dangerous. In thus bargaining with the board the local administrator loses control, on the one hand, and assumes, on the other, responsibility which in the end may come back to him in an unpleasant way if anything goes wrong.

Assuming, therefore, some responsibility on the part of the school board for educational planning, let us examine the extent to which it was involved in our nine adaptations. It seems reasonable to picture the board as a planning agency and through such service we should find rather direct contribution to adaptability.

Educational Planning and Nine Adaptations

Some degree of local study had appeared in a few communities which had made the nine adaptations. In possibly one-third of the communities which had planned their high school organization, there had been some form of planning on the part of the local board of education, the superintendent, or others. This was largely due to the fact that high school reorganization most frequently involved additions to the physical plant facilities of the district, necessitating, in many cases, extensive activities in floating bond issues and seeking approval of architectural plans. In approximately one-third of the places which had special classes, some form of local study had contributed to the change. Occasionally studies of overageness and retardation had revealed the needs to which the special class was an adaptation.

For the remaining seven adaptations, the change was rarely made

as a result of thoroughgoing study on the part of local individuals of the educational needs of the community or the extent and adequacy of the existing service. Indeed, only one-fourth of the communities with kindergartens had shown any evidence of having studied the needs of the education of youngsters of four to six years of age. This is somewhat consistent with the observation that the kindergarten is most frequently introduced as a response to demands by persons other than the board of education or the local administrative staff.¹ One is amazed at the few cases in which change in policy with reference to the curriculum, which is involved in several of the other adaptations, has been based upon local study of the circumstances which demand this type of change. The explanation may be due to the inadequacies of local administrative leadership and in part to lack of elements essential to an adapting and experimental point of view in the administration of the local school program. In case after case community visits revealed that changes had appeared only superficially and as a result of the most limited forethought and planning. In all the nine adaptations there was a high frequency of communities which had been motivated to the introduction of changes, adding junior high schools, changing the report card, providing classroom libraries, and the like, mainly because "other communities were doing it and it seemed a good thing to do."

This may account for the frequency with which adaptations lacked genuineness. In many cases they exist only in the minds of the professional staff. In other cases they exist only in form but not in substance.

School Board Membership

There is a tendency for us in education to consider the problem of bringing about change almost entirely a professional matter. Some would rule school board members out of the picture entirely as persons who were not professionally fit, on the one hand, or too much concerned with non-professional interests, on the other. Perhaps something of the former point of view is responsible for the lack of evidence in this study of direct activity of school boards

¹ See *supra*, p. 226.

in the adaptation process. Particularly when we see how few of the adaptations had their origin in groups outside the schools and when we see communities giving the impression that the professional group stands in the way of advancement, do we become disturbed over these results.

If it is true that the profession in general has tended to assume as their own prerogative whatever responsibility is demanded for progress, this in itself may go a long way in accounting for the lack of active work on the part of school boards. To say that school board members are ignorant of the needs of the schools is no excuse. We could ask, "Why have they been allowed to remain in ignorance?" To say that the public at large is ignorant is in itself no excuse. This may explain why the school board members themselves are less dynamic in their attitude toward education.

But there are other explanations for the small part which school board members have played. One of them may be the traditional view of the function of the school board. Since our studies were of an observational nature, we succeeded in obtaining considerable information that bears on this point, although it cannot be considered completely representative. Either because of the nature of our own approach to the problem or because of the ease with which a negative impression comes to mind, we obtained what we hope is an altogether disproportionate amount of information on poor school board members. The readers are asked, therefore, to consider the following information as very probably painting a much gloomier picture than the full facts would warrant. If the reader will hold in mind that he is looking at the negative aspect of the problem, he will find in these materials many important implications for structural design and administration.

Our attitude questionnaire showed that school board members, in general, lacked any special qualifications or training for their posts—a fact which is of course commonly known; that they are highly opinionated on educational issues with respect to which they do not have the necessary information to formulate enlightened opinions; and that they show greater resistance, on the average, to new practice than either teachers or parents. When it comes to the problem of attempting to show by field inquiry the various types

of persons on school boards and the types of school board behavior, the problem is difficult. In a Philadelphia suburb, for example, almost all the school board members could not be interviewed until evening when they returned from their business and professional offices. In a mining town a hundred miles away the entire school board was in town, but five hundred feet below the surface working in the mines. In a western rural community which bordered on a fair-sized town, it was possible to get four of the five school board members together by working from eleven in the morning until three in the afternoon—talking to one man who worked in a factory but who was taking the day off, arranging for a brief conference by calling a second out of a factory, waiting until the end of the day's work in another large plant and catching the school board member as he came out with a hundred other workers, and finally, visiting a small milk-bottling plant to interview the fourth man. The fifth school board member had been taken to the hospital the morning we arrived.

On the basis of our exploratory observations we have sought to describe various types of school board members. We cannot be certain of the number who would fall in each type, since we actually interviewed only sixty-nine school board members. But out of this sixty-nine we observed the following types of board member behavior.

AS A POLITICAL STEPPING-STONE

Men of this type work in various ways. There is the case of the member who scouts around for a sensational disclosure of wasted funds. There is the man who sponsors a change with publicity value—a swimming pool or a uniformed school band. Under proper guidance such a person might obviously become a real contributor to adaptability. During the depression many politically ambitious board members sponsored the elimination of kindergartens, visiting nurses, special classes, and other "frills." Others who were seeking office were content with the run-of-the-mill publicity that came in the course of board meetings. They were well satisfied to be known as good board members. The office-seeking board member seems to be particularly rare in the residential suburb, where most of

the board members are business or professional men who work in the city and are not interested in running for office.

AS A SUPPLEMENTARY CAREER

The school board seems to draw a number of persons who are seeking to find in this work some of the psychic income denied them in their own careers. Several persons of this type were observed to have hobbies—adaptations which they could push as their very own. This seemed to be one of the purposes which activated business and professional men and their wives to become board members. Since such persons are more interested in *having* a hobby than in riding a *particular* hobby and are willing to give much of their time and energy to the subject of their interest, they would seem to be potentially highly useful board members.

AS PERSONALITY ADJUSTMENT

The school board seems to be a favorite field for the exercise of certain personality aberrations. There is the type of person who wishes to feed his sense of self-importance by obtaining a position of responsibility on the board and adopting a domineering attitude. Such persons easily become convinced that they are "running the school." Others find an outlet for their dominating attitude by becoming chronic minority members. The most extreme case was that of the school board member who in the course of six years had voted with the majority only two or three times. He constantly boasted that he was "an independent thinker." Several persons were observed who were of the extreme "tit-mouse" type. They feared to participate actively in meetings. Conscious of this, one such person explained that most of his acquaintances were afraid that he would not "stand up" for what he believed, but he "had shown them." Members like this are the stuff out of which leaders create majority votes.

Other persons who might be classed in this category are those who find in the school board an opportunity to supplement an emotionally barren personal life with highly emotional audience responses. Such persons tend to "play to the gallery" without regard to the educational issues involved.

Another emotional type is the person who is "out to get somebody." Observations would lead us to think that it is easy for agitators, dominators, and variously unadjusted individuals to impress the mass of voters as "public-spirited citizens." We might ask whether it is possible to train the electorate to recognize such persons for what they are, or alternatively, to discover a way to select school board members to free the school system from dead wood.

AS PROTECTION OF SPECIAL INTERESTS

The activities of tax-minded groups have been so strong in the last few years that little need be said about this numerous category. Certainly no one could object to having the ability and willingness of people to support schools put over against the desirability of the results to be obtained. But in many instances it has been observed that there is little probability that the board member could show anything but a closed mind to possible advantages from public expenditure. Often we have found persons who had no minds of their own. They did not take advantage of a wide public from whose appeals they might select that which in their judgment might appear best. They represented groups whose interests were in no wise divided. Not all powerful property groups are blindly opposed to educational expenditure, but there was observed a strong tendency for these groups to believe that the educational program could be cut to fit the current margin of profits. When profits were good, some of these groups were generous; when the margin was narrow or negative, some became ruthless in their attacks on school budgets. Certain sections of Pennsylvania have been particularly hard hit in this respect because of the prolonged depression in certain of its industries which almost completely dominate many school districts. It raises the question seriously whether or not a school district should ever be limited to a territory in which a single economic interest can attain a dominating position. Larger school districts would often correct this situation. Sometimes, of course, state prudential control may be necessary where this is not feasible. Certainly such communities cannot be trusted with the responsibilities of the state to the same degree as communities with more stable economic resources.

AS EXPRESSION OF PARENTHOOD

A few parents, anxious that their children should have the best, will seek board membership as part of their protective role. By and large, this is probably a favorable type from which to draw. The difficulty is that children grow up and get through school, and those who are dominated by these interests no longer have the drive. Not all of them can supplement their interests and become good parents in the name of the whole community.

AS A VENTURE IN SCHOOL MANAGEMENT

An interesting and highly influential type of board behavior is the carry-over of business stereotypes. School board members, convinced that they know how to run their own business and attempting to apply to schools rule-of-thumb methods which they have found useful, represent a serious problem. The problem is all the more serious because many times these men are persons of high standing in the community whose judgment tends to carry far more weight than is justified by the soundness of their thinking in a strange situation.

These types are certainly not complete and, as we have said, may not be even broadly representative. But they appear sufficiently often in our studies to indicate that one or more may easily show up in any school board. The least we can do is to study the problem of dealing with them as persons whose interests may be built up to the public citizen level. Back of this there is probably a general failure on the part of educators and other representatives of public interest to "grow" more public-spirited citizens. When one finds men who have gone through the public school system from the kindergarten through the state university and who have no conception of the place of public education in American life, he cannot but feel that somebody has done a pretty poor job. Perhaps our most promising attack on this problem is to give less time to ironing out difficulties of administrative organization and more to discovering public-minded persons who can be made willing to serve the public interest on the board of education, who when given a better understanding of public education will be judicial protectors of both pub-

lic and private interests. We need more school board members of the "good judge" type, representing varieties of backgrounds but alike in this one thing, that they have attained a level of understanding which sets them sufficiently above the petty difficulties of today to make it possible for them to see the long-trend implications of public policy. Perhaps there was more than appears on the surface to the plan of selecting school board members by judicial appointment.

The School Board at Work

Our observations brought out some of the problems which make the work of any school board difficult and suggested ways and means by which these conditions might be improved.

SECTIONALISM PRESSURE

Many school boards are cursed by an acceptance of the point of view that they cannot do something for one part of the city because they cannot do it for all parts. This attitude is typified by one board member regarding a proposed new building. "While all of us would like to see the best possible building, we must play safe. We certainly do not want to see something done in one section of the city to the disadvantage and expense of the children in another section." This is an application to the work of the school board of that "dry rot" which tends to attack all administration. Such an attitude so easily becomes a substitute for thought. The administrator says, "I cannot do this for you because it would not be fair to do it for one and not for all." Yet we know that progress most often comes by doing for one something which thereby becomes demonstrated as desirable for all.

FADS AND FRILLS

Particularly hampering to adaptability is the widely used stereotype "fads and frills." This rhetorical trick is too well known to educators to need any explanation. One bright spot was the school board member who seemed to be generally aware of this trick and how to meet it: he simply asked his critics, "Just what is a frill?" Nevertheless, it was quite clear that being a school board member

during the depression was no sinecure. Board members complained frequently that they did not know what they were getting into. The continuous bickerings that many boards are drawn into may have the effect of driving away from board membership all but those who like a fight or those whose private gains outweigh unpleasantness of membership.

CONSUMER COERCION

In one city it was a general complaint of board members "that people who are annoyed at the action or inaction of the board take it out on the particular members they know by refusing to do business with them. This accounts for the fact," they said, "that so few business men in the town can be persuaded to run for the office of school director."

BOARD BUSINESS

The school board member's picture of a school board is often a handicap to proper functioning of the board. Here is certainly a place where professional leadership could do some good. Board members' pictures of themselves run from the dictator to the rubber stamp, with the concentration being nearer the dictator than the rubber stamp. Often entering upon the work of the school board with the statement that they lack a basis for opinions on professional matters, they frequently lose, all too soon, any hesitation they may have in expressing opinions. Even when the professional staff has not gone to the trouble of correcting their ignorance, they soon gain sufficient confidence to express opinions on complicated educational issues. Educational leaders could gain much by being aware of the fact that this point of view is almost always forced upon members, for in intellectual circles, in particular, it is definitely embarrassing to admit indecision or ignorance.

Another matter that affects the way of doing board business is the tendency to sidetrack important educational issues in order to deal with petty complaints. This is due in part to poor planning on the part of the executive; it is also due in part to failure of the public to brook small inconveniences of public or special groups. When a board meeting comes along, their particular problem must be set-

tled. Unless a board has been wise enough to delegate authority to administrators, these demands monopolize their time. This is not a shortcoming of school board members only; it is quite noticeable also in committees of college professors. As one board member said of the board's failure to shift school time to daylight saving time, "I have heard all kinds of objections; in fact, I have been talked to until my ears burn." The failure of the board to shift its time to daylight saving time will arouse a storm of criticism, while the continuation of the requirement that all children study algebra can go on until doomsday without protest.

STEREOTYPES OF ADAPTABILITY

Board members often have stereotypes favorable to adaptability. Sometimes they pride themselves on being "pioneers." In general, it must be said that such pride is remote from specific issues. The same board members who extolled their schools as "pioneers in the educational field" were also found tabling important issues on the ground that one must "make haste slowly" and "not jump headlong into new things." Two of the issues where such clichés were used had been discussed off and on for ten years. Yet pride in "pioneering" was a definite factor in board acceptance at an early date of such adaptations as open-air classes, a dental clinic, sight-saving classes, and others, which typically attract board attention and require board approval.

It was very encouraging to find a lay board member who both endorsed the general point of view that educational practices were undergoing a change and applied this belief to the specific issue of a building program. He advocated moderate costs on the following grounds: "It is false economy to build structures for a long period of time because educational trends are changing so rapidly that the building of today will outlive its usefulness about twenty-five years hence." He accused fellow board members of erecting costly monuments to themselves.

Usually board members fail altogether to consider buildings in relation to adaptability. A board was considering the size of some proposed buildings. A majority was in favor of sixteen-room units in order to "put the schools where the people were." Several mem-

bers reported numerous complaints by parents who thought their children had to walk too far—more than about four blocks. This community takes pride in the fact that in some sections of town it is possible to go from kindergarten through college without walking more than a few blocks. The superintendent finally built up a majority in favor of a thirty-two-room building.

THE SCHOOL BOARD AT ITS WORST

School board members with various purposes come and go. Doubtless in vast numbers of cases, through careful help by good educational executives and the influence of public-minded members, the board as a whole remains true to the best interests of the community. But this is not always so. In those cases where public-mindedness is crowded out, the causes are various. They may be passive educational leadership, domination of some local group, or discouragement through long financial depressions without proper consideration of the needs of the community by the state legislature. Often the cause may be an inadequate type of school district organization which leaves the interests of all the people in the state in the hands of a group representative of only one sector of the population. Observations in one of these communities, where a number of these factors are operating, may prove of interest.

In the community in question, as in most communities, service on the school board nominally brings no financial returns except small fees for solicitor, secretary, and treasurer. Yet in this poor little one-company coal town, where everyone must work and few can afford the time and antagonisms involved in board membership, this is one of the most coveted of public offices.

When questioned about the motives behind this competition for unpaid "volunteer service," a prominent representative of the local company who had just been defeated for the office of school board member replied: "The less said about our school board the better." Beginning with this ominous remark, the story of lay control was gradually unfolded.²

The local coal company, which pays over half the taxes, had been

² Field workers overheard themselves being discussed by what turned out to be a meeting of the town's "bosses" who were gathered together for the nightly confab in the store of their recently deceased leader. A congenial and

trying to place men on the school board to reduce its tax bill. Recently its candidates were badly defeated by the miners and it is now seeking tax relief through a valley-wide taxpayers' league. The attempt of struggling anthracite companies to lower their tax costs through this league rather than control of boards has been greatly stimulated by a recent state supreme court decision granting several companies substantial reductions in the assessed valuation of their underground coal deposits. In some of the coal towns the company still retains complete control of the board.

Although the two paid positions on the school board yield only a few hundred dollars a year, this seems large in a community where the average worker is employed less than 150 days a year and receives about \$1,000. A much more important inducement to volunteer for public service as a board member is control over teaching appointments. The awarding of a teaching contract is a great favor in this town. With the decline of mining, teaching has become the most secure and remunerative vocation available. It is highly prized and demands quite a price in the form of favors. By board ruling all teaching appointments are restricted to local people. (An astounding exception to this general rule is a near-by board which formally restricted the number of home-town teachers to two-thirds of the total staff.)⁸ Increased school expenditures in these inbred towns will not increase adaptability as long as economic distress places the schools in the role of work relief institutions.

How far boards can disregard the educational function of the teacher in their pursuit of other purposes is indicated by a recent appointment in this town. A former member of the board was sponsoring an unusually well-trained and widely experienced local girl. She was voted down in favor of another local girl who had no experience and half the training, but twice the political backing. In disgust the defeated board member exclaimed "What does a girl need to become a teacher in this town?" "Four votes," answered another member.

highly informative discussion ensued in the course of which, as each "boss" left in turn to go home, the investigators got a very special "lowdown" on his particular contribution to the patterning of education.

⁸ See p. 280 for an account of teacher inbreeding in this and other towns.

Similar to the boards in many towns, this board was made up of members representing antagonistic groups. The few remaining coal company representatives invariably hold out for reduction of the tax rate. When the issue is a new teacher, bitter antagonisms will arise between representatives of the various family factions. When members come to meetings previously committed on important issues, such as teachers, "frills," salaries, and the like, and when school board membership means a great deal, the set-up, with a few exceptions, is not favorable to the introduction of adaptations nor the preservation of those already adopted.

The outlook of the president of this board suggests a tentative hypothesis about board members. He freely admitted the large role of politics in his decisions—exchanging votes, handing out jobs as favors, and the like. He defended his general policy as one of "playing ball" with the main family factions and the coal company to get the program through by giving each of them something that "won't hurt education." This man finds himself in a pressure situation where he frequently must rationalize an action by telling himself that it "won't hurt education."

Such instances of rationalization suggest that the persons charged with the responsibility of seeing that the school keeps going from day to day are likely to be so narrowed in outlook by the pressures of the moment—complaining parents, demands for favors, squabbles over teacher appointments—that they are often unable to see clearly the long-term possibilities of change, or the full extent of the damage of their concessions to pressures.

Everyone who mentioned the tactics of the school board assured us that while the board played politics, it did not sell out the schools or do anything which really hurt them. Anyone who believes this must have a very limited picture of schools and education. We can see here the influence of the cultural level of the population. Such an attitude would be unthinkable in the typical residential suburb of large cities such as Philadelphia.

Summary and Implications

Viewed in its relation to adaptability, the school board is seldom seen as an initiating or active supporter of adaptations but rather

as a group either to ignore when its approval is not absolutely required or to cope with strategically when its consent is necessary. Despite many exceptions this is the general picture. The exceptions are instructive and encouraging and many of them have been mentioned; but the type of lay control exemplified by the American school board as we saw it is a structural feature unfavorable to the diffusion of many important adaptations.

Obviously here are a multitude of problems for the student of structural design of school systems or for the student of administration in general, and, in particular, for those interested in keeping our schools operating on as high a level as we know how to operate them. Even those interested in political government may find here a challenge to the rule-of-thumb which says that the board which has taxing power must be elected by popular vote. In setting up the structure of local school districts this principle has been paramount. Considering the number of instances in political government where the principle has been violated, is it possible that here is one more case where some other device in line with democratic forms of government might be more in the public interest?

CHAPTER XI

Teachers As Adaptors

PREVIOUS chapters in this part of our report have presented an analysis of problems of adaptation which involve the local administration of schools, the professional administrative staff, and the board of education. This chapter deals with the local staff of teachers who, whatever the conditioning factors or motivating causes, are the adaptors in all cases where teaching is carried on.

In the forty-eight communities visited, principals, teachers, superintendents, school board members, and members of the community at large were interviewed in order to discover the nature of participation of each group in those of the nine adaptations subject to special study which had been introduced and in efforts to introduce the others. The nature of the participation was classified as leadership, support, followership, neutrality, ignorance, divided interest, and opposition.

Teacher Participation in Local Adaptations

The nature of the participation of teachers in the introduction of the nine adaptations studied is shown in Table 32 and Figure 22. The entries in the table show the number of communities.

KINDERGARTENS

In the case of the kindergarten, the teacher cannot be said to be an initiator of this change. Elsewhere we show that administrative leadership and community and parent demand have had the most frequent bearing upon the introduction of this project. In one community a teacher, because of direct interest in the position which she subsequently was to hold herself, was instrumental in developing local interest in the public kindergarten. Predominantly, however, in places with kindergartens, the role of the teacher has been classified as distinctly neutral. In places without kindergartens, the neutral position of teachers is decidedly the most frequent type of rating which we made in field visits to communities.

It is of interest that after fifty years of experience with kinder-

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TABLE 32

Nature of Teacher Participation in Development of Nine Specific Adaptations

ROLE OF TEACHERS	KINDERGARTEN	REORGANIZED HIGH SCHOOL	SPECIAL CLASSES	HOMEMAKING FOR BOYS	ADULT LEISURE CLASSES	EXTRACURRICULAR ACTIVITIES	ELEMENTARY FINAL EXAMINATIONS	INTEGRATED CURRICULA	SUPPLEMENTARY READING	To- TAL
Communities with adaptation:										
Leadership	1	1	6	5	3	5	5	2	3	31
Support	3	1	13	5	5	10	4	—	7	48
Followership . . .	1	11	7	2	4	12	9	2	8	56
Neutrality	8	13	1	1	11	2	1	—	—	37
Ignorance	—	—	—	—	1	—	—	—	—	1
Divided interest .	—	—	1	—	—	—	1	—	—	2
Opposition	—	1	—	—	—	1	2	—	—	4
Total	13	27	28	13	24	30	22	4	18	179
Communities with- out adaptation:										
Leadership	—	—	—	5	—	—	1	1	—	7
Support	1	2	4	—	—	—	1	—	2	10
Followership . . .	6	2	3	1	3	3	—	2	5	25
Neutrality	24	15	13	12	18	11	8	14	18	133
Ignorance	1	—	—	17	3	4	16	23	3	67
Divided interest .	—	1	—	—	—	—	—	3	2	6
Opposition	—	—	—	—	—	—	—	1	—	1
Total	32	20	20	35	24	18	26	44	30	249
Grand Total	45	47	48	48	48	48	48	48	48	428

Note: The entries indicate the number of communities.

gartens in the state of Pennsylvania, we still find teachers in the communities to which this adaptation has not spread taking so little active interest in it. Of thirty-two communities without kindergartens, not a single instance was found in which teachers were actively engaged in promoting the kindergarten. In only one of these communities were teachers positively in favor of the adaptation. In six communities teachers were aware of the need but not particularly enthusiastic. In twenty-four communities the attitude of teachers

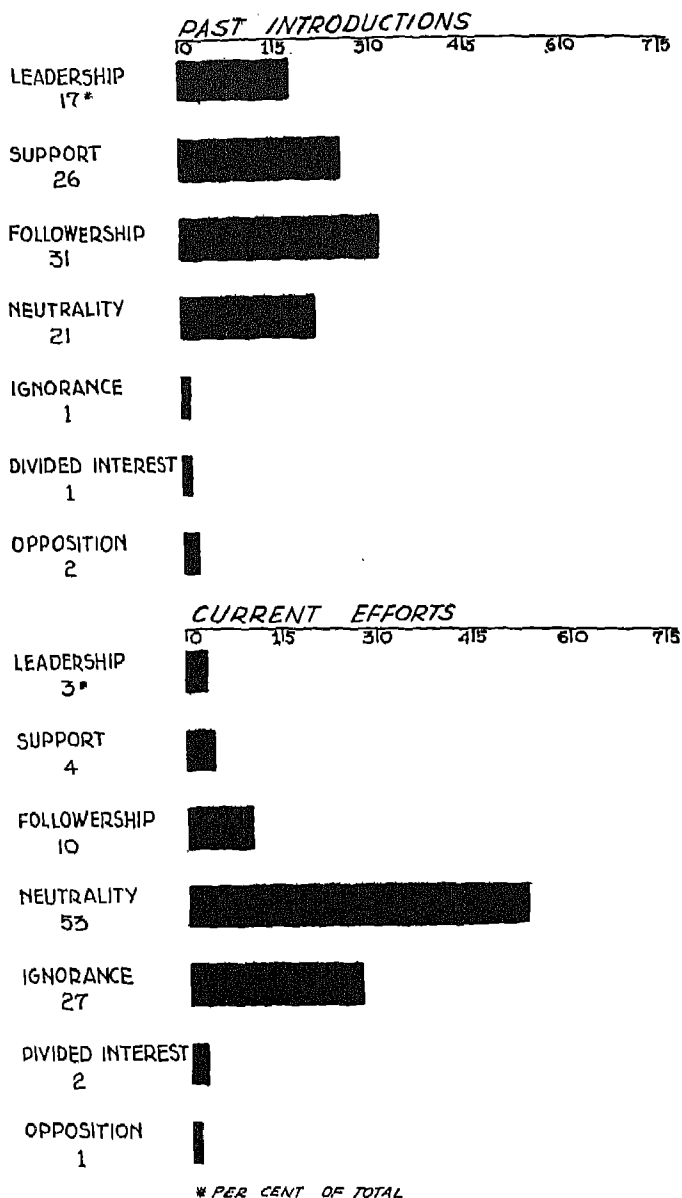


Figure 22. Nature of the Participation of the TEACHING STAFF in the Diffusion of Nine Adaptations

was neutral and there was no evidence of budding activity leading to the promotion of this adaptation.

REORGANIZED HIGH SCHOOLS

The observations made above with respect to the kindergarten will apply very largely also to the reorganization of high schools. In a number of communities the typical stand of teachers is in a position slightly above neutrality. In eleven of twenty-six communities where the change has been made we find the professional staff following the lead of other individuals or groups who initiated the adaptation. But here also most communities that have not made this change are staffed by teachers whose position is definitely one of neutrality. It cannot be said that teachers themselves are now acting as a spearhead for the further diffusion of this adaptation.

ADULT LEISURE CLASSES

While teachers have taken a somewhat more active part in introducing adult leisure classes, in the communities where these classes do not exist there is found the same neutral state of mind that characterized the teachers' attitude toward kindergartens and reorganized high schools.

HOMEMAKING FOR BOYS

At the other extreme the home economics teachers are characteristically taking the lead in developing classes for homemaking for boys. Perhaps this is because of the fact that the adaptation tends to affect a single teacher or a single department of a school and is not associated with additional costs. Here we find that in five of the thirteen communities which have this adaptation the teacher was the leader in its initiation. In five other cases the teachers supported the change even though they did not take the initiative. In only three cases was a neutral attitude indicated. The importance of the teacher in this adaptation is shown also in the communities which have not made the adaptation. In five of the thirty-five communities, home economics teachers are now engaged in the promotion of the adaptation. On only two of the other eight adaptations were teachers found taking a similar stand and in each of these cases

only one community was represented. In contrast to this active interest, we find seventeen communities where teachers seem to be ignorant of the need of the adaptation. This is matched by only two of the other nine adaptations studied—the elimination of final examinations and the integrated curriculum.

In the diffusion of this adaptation we tend to find the teacher as the spearhead of the change, but it should be stated that it is the particular teacher of home economics rather than the teaching staff in general. This suggests that more effort might be made to inform home economics teachers with respect to this need and that more might be interested to take an active part in the future development.

SPECIAL CLASSES

In six of the twenty-seven communities which have special classes, teachers were largely responsible for the initiation of the adaptation and in thirteen other communities the teachers actively supported the adaptation. Associated with this introduction was an active interest on the part of the State Department of Education which may have enabled teachers to take a stronger position in bringing about the adaptation. In no other adaptation have teachers of the community been so actively interested. There are indications that this is due in no small degree to the desire on the part of the teachers to be freed from the necessity of dealing with handicapped children. However, in the twenty communities studied which do not have this adaptation, no teachers were found who were actively promoting the adaptation, as in the case of home economics for boys. Four of these twenty teachers would readily respond to leadership and in all twenty communities, teachers were found who would give it active though not enthusiastic support. In thirteen of these communities, teachers were aware of the need but the state of their interest gave little promise that they would be positive factors in bringing about the adaptation. No instance was found where teachers were not aware of the need.

EXTRACURRICULAR ACTIVITIES

One adaptation which intimately concerns the teacher as much as any new activity of the school is the coordination of extracurricular

activities with the educational program. Here we find in most places which have made the change a favorable followership rating. In five of twenty-nine communities which have made progress in this area, the leadership of teachers themselves, through special interests, has been largely responsible for initiating the change. But here, as in other cases, in communities without the adaptation the most common rating of the professional staff is neutral. It is of importance to note that even with this adaptation the teacher was not the chief moving factor. The administrator has most commonly taken the lead. Interestingly enough, in ten of the communities which have the adaptation, teachers took the role of enthusiastic followers and in only fourteen was the attitude neutral. Evidently in the communities which do not have this adaptation the teachers are awaiting leadership in promoting it.

ELIMINATION OF ELEMENTARY FINAL EXAMINATIONS

Teachers take an important but less active part as leaders in the elementary final examination adaptation. Here we find that in five of the nineteen communities teachers played an important leadership role along with the administration. In four of the cases teachers were enthusiastic followers. In ten, however, the teachers seemed to have taken a neutral stand. In the twenty-six communities that do not have this adaptation there is only one in which teachers are actively promoting it and one in which teachers are actively interested and awaiting leadership. It is interesting to note that while this is one of the oldest of the adaptations, of the twenty-six communities which did not have it there were sixteen whose teachers appeared to be ignorant of the need for it. This may mean that the adaptation lacks those qualities which dramatize it. It should be remembered that during its history this adaptation has taken on greater significance. It is now more than merely the mechanistic abandonment of final examinations. It is one of the stigmata of a more thoroughgoing philosophy of individual as opposed to mass education.

EXTENSIVE READING

As with most other adaptations, the adaptation providing more extensive reading materials for children has not been initiated by

teachers. In only three of eighteen communities having made progress in this direction were there found teachers with sufficient enthusiasm and vision to initiate advance on their own by developing classroom libraries and enlisting administrative assistance. There is, however, no adaptation in which a larger percentage of teachers were either leaders or enthusiastic followers.

Teachers enthusiastically in favor of this type of change are rarely found in communities which have not yet extended the reading program of elementary schools. Does this suggest that to be appreciated this adaptation needs only to be introduced?

INTEGRATED CURRICULUM

There were only four communities which had made this change. In two of the four the change was made directly through interest of the teachers involved. In the other forty-four communities only one case of teacher leadership and two cases of positive interest (followership) were noted.

Teacher Participation and Genuineness

There is some evidence that where the teacher is the follower of a change and where the change is brought about in a way which results in a genuinely worth-while adaptation, there is a greater tendency for the teacher to become enthusiastic. In many cases where a reaction had set in against newer practices, teachers were found not willing to give up the new philosophy. It seems very likely that where leadership has been adequate, the teacher is inclined to favor a better type of school once he has been given an opportunity to work *as a participant in the process*.

Although the teacher is not the most frequent initiator of change, at least in the areas we have subjected to investigation we have seen that he plays an important role. The nature of this role is well illustrated in the case of the integrated curriculum adaptation. It is difficult to conceive of adequate changes in this direction without the teacher becoming an important part of the process. The success of such programs, as those who have attempted newer practices will know, depends very largely upon the teacher. It seems, therefore, that whether one is to place a great deal of emphasis upon adminis-

trative leadership or a great deal of emphasis upon teacher initiative, the teacher himself must possess skill, knowledge, and attitudes which will enable him to take a more active part in the innovation of changes, particularly those which bear directly upon the curriculum and classroom instruction.

In the field work carried on in the forty-eight communities, each of the nine adaptations made by a community was rated on a four-point scale as to genuineness. There seemed to be little relationship between the amount of leadership exercised by teachers and the genuineness of the adaptation. By and large, however, when teachers were in the role of leader or supporter, the adaptation was somewhat more genuine than when the teacher was in the role of follower or neutral. But leadership showed no advantage over support; in fact, the evidence was slightly in favor of the supporter role.

With respect to individual adaptations, no relationship between degree of teacher participation and genuineness was found in the kindergarten, special classes, homemaking for boys, extracurricular activities, integrated curricula, or supplementary reading. High school and adult education activities, with teachers rated as followers rather than as neutrals, showed somewhat more genuineness. In the case of final examinations, adaptations in the communities in which the teachers were rated as supporters were considered more genuine than those in which the teachers were rated as leaders. No difference showed up between followership and neutrality. It should be remembered, however, that the differences in all cases are slight and might easily have been due to chance.

The Role of the Teacher

It seems unfortunate that we have limited professional interest to specialized fields. According to present thinking with respect to the role of teachers, we should not make such a limitation. If teachers are to play an important role in policy making, the home economics teacher, for example, must be interested in educational policy outside the field of home economics. Teachers in general must be interested in the welfare of handicapped children for positive reasons rather than negative ones. They should be disturbed by the slow

spread of the kindergarten, with bringing about better practices with respect to the curriculum, guidance, and other aspects of the school.

If we take the attitude that teachers must be actively concerned if adaptations are to be genuine and worth while, we find little cause for enthusiasm in the situation just portrayed. In the communities which have made adaptations there were seventy-four instances¹ where teachers took an active part as leaders or enthusiastic followers, whereas there were ninety-one cases where teachers remained in a neutral position. In the communities which have not made adaptations, we find only seventeen instances out of 221 where teachers are not taking an active part in promoting the adaptation but are in a position of positive readiness for following an initiator. There are only seven cases where teachers were actively interested, and five of these were in the field of home economics.

This may be a result of a shortcoming in training or it may be a result of looking to the administration for leadership. On the other hand, it may indicate that to expect teachers to assume leadership is to be over-optimistic. Certainly it does not indicate that we are in a position to support teachers as initiators in preference to administrators. In the actual changes which have come about in this generation in Pennsylvania, while administrators have not covered themselves with glory they have shone brightly when contrasted with the teaching staff. If teachers are to take a more important part in the adaptation process, something must be done through training to overcome narrow professionalism or lack of broad enthusiasm for the improvement of the educational program in general as opposed to an interest in highly specialized fields or purely local affairs.

It is to be emphasized that the extent to which teachers are to be depended upon for activity in supporting and initiating change in school programs is, under present circumstances, a highly variable matter. A new era is not to be expected from professional staff leadership in communities not now adapted to the needs we have studied. As the following sections show, teachers in these commu-

¹ One adaptation in one community is an instance or case as used here. Since there are nine adaptations and forty-eight communities, there are potentially 432 instances of adaptation.

nities are, compared to those in the high-rating communities, less enthusiastic, less active, not as adequately informed of problems they face, and lack many other desirable characteristics of an adaptable personnel.

Adaptability and Teacher Opinion

A questionnaire of opinion on educational issues was distributed to teachers in all communities in this study. The questionnaire consisted of one hundred statements, chosen largely from the areas represented by the twelve adaptations originally chosen for special study.² It provided means for indicating agreement or disagreement. A high score indicates a favorable attitude toward educational change; a low score a conservative attitude. Statistical analysis shows that the variations in community averages are highly significant.

It was decided further to break down teacher opinion scores for the school program in general in terms of communities *having* and communities *not having* each of the nine specific adaptations. The results are shown in Table 33. We see in this table that the mean score of all places with kindergartens was 74.99; the mean score of teachers in all places without kindergartens, 73.45.

Since these are scores of averages for more than 1,000 teachers in each case, the differences while not great in amount are highly free of sampling error. The difference between each pair of means is highly significant statistically, with the exception of means for the integrated curriculum adaptation. A more forward-looking attitude is found in communities which have introduced the several adaptations. In the case of the integrated curriculum, there were only four communities which had made this change, and in each case the change was highly nebulous in character—so much so that the presence of this innovation in no sense characterizes the adaptability of the educational program. It will be remembered that this is one adaptation which is in its earliest stages.

From these data there is no basis for saying whether the opinion of teachers and their attitudes have causal relationship to the intro-

² Paul R. Mort, Francis G. Cornell, and Norman H. Hinton, *A Poll of Opinion on What Should Our Schools Do?* New York: Bureau of Publications, Teachers College, Columbia University, 1938.

TABLE 33

Community Means of Teachers' Scores on Poll of Opinion, Communities With and Communities Without Nine Adaptations

ADAPTATION	MEAN SCORE	
	Communities With Adaptation	Communities Without Adaptation
Kindergarten	74.99	73.45 (1)
Reorganized High School	75.00	71.88 (1)
Special Classes	74.41	73.16 (1)
Homemaking for Boys	75.41	73.46 (1)
Adult Classes	74.80	73.21 (1)
Extracurricular Activities	74.49	73.09 (1)
Elimination of Elementary Final Examinations .	75.13	72.91 (1)
Integrated Curricula	74.03	74.13 (4)
Supplementary Reading	74.93	73.49 (1)

¹ *Highly significant* difference. ⁴ *Inconclusive* difference. Cf. footnote Chapter III, pp. 57-58, and Supplement B, Note 17, p. 490.

duction of educational changes. In view of the foregoing analysis, however, since the teacher himself is not commonly the initiator of an innovation, we know that any causal relationship would not be a direct one. Also, as was pointed out above, the followership quality of teachers is a characteristic of communities which are making the changes. It might well be that favorable attitude generally toward education is indicative of certain aspects of fertility for adaptation which are important factors, even if indirect.

A further analysis of correlatives favoring education and other professional and social considerations in communities suggests that changes are more likely to be made in communities where the general tone of teacher sentiment is receptive. While there is a strong possibility that there is a causal relationship, it is highly probable that the effect is cumulative, that is, the improved attitudes coming from one adaptation make a more fertile ground for other adaptations, even though they may be only remotely related. But it might not be the single adaptation as much as the other adaptations which are associated with it, because it has been observed that

places making a given change are also places which, for the most part, have been making others.

A further understanding of the factor of teacher sentiment is made possible by comparing it with the total extent of adaptations on a scale of 183 items. In Chapter VI a plan was developed for the analysis in thirty-six communities of the extent to which adaptations gravitated about two well-known correlatives of adaptability, tax leeway and size of district. This made it possible to explain part of the variation of adaptability of communities in terms of these two factors.

What has been said with respect to individual adaptations is borne out when we take into consideration the whole range of 183 adaptations on which each community was rated. The average degree to which teachers in a community accept the implications of adaptability, as measured in a poll of public opinion,^{2a} is significantly related to the level of adaptability in the school program. Variations among communities in average teacher opinion as thus measured, however, do not explain, as one might hope, variation among the tax leeway categories. There is no significant variation, among groups of communities classified according to tax leeway, in the average level of opinion of teachers. Furthermore, there is no observable difference in the average level of opinion between large communities and small communities. Moreover, if the thirty-six communities are treated as though each had the same average level of teacher attitude possessed by all others, the forces associated with size and financial resources would still operate. That is, there would still be variations to explain.

Statistical analysis of the covariance of average teacher opinion and adaptability in the thirty-six communities shows that, had all communities been the same as to financial resources and size, there would have been little appreciable change in the observed correlation of adaptability and teacher opinion.

In interpreting these observations it must be noted, first, that the sentiment of the professional staff is an important correlative of adaptability. In the second place, however, other forces are operating which produce variations in the capacities of school systems to

^{2a} This is discussed in more detail in Chapter XIII.

adapt—forces which would continue to operate even if through a campaign of professional in-service stimulation unfavorable teacher sentiment were to be removed. The sentiment of the teacher is undoubtedly an important area of attack, but one can expect little successful implementation of new educational services by attacking this area while disregarding other conditioning factors.

It seems rather significant that the proportion of teachers in a community exceeding a relatively high point on the scale of public sentiment produces a somewhat higher relationship to the adaptation level than does the measure of average level of opinion. This suggests the conclusion that a group of forward-looking teachers in a faculty may be more important for adaptability than a relatively high average level of the whole faculty. Although the measure indicating the proportion of teachers at the top of the opinion scale seems to reflect variations in adaptability better than the average measure, it does not explain variations among communities due to financial resources and variations between large and small communities.

The Teacher and Experimentation

Those who believe that local initiative fosters adaptability invariably point to the advantages that come from experimentation. They say that the educational staff in a community, with latitude in controlling its educational program, is more likely to try new ways of meeting old needs and to become aware of needs than persons less intimately associated with the actual educational program. We are therefore much interested in discovering the degree to which experimentation is actually going on. Especially are we interested in discovering whether there is more experimentation by teachers in the schools which rate high in adaptability. In so far as the teacher himself is an important participant in the introduction of innovations in the school program, this item should be important.

In addition to casual observation of degrees of teacher experimentation by questionnaire methods, teachers were asked what changes they had made in their work during the current year. The replies varied from none to very thoroughgoing experiments and changes which teachers themselves had undertaken. In the least

adaptable schools, high frequencies of teachers reported no experiments, or listed very insignificant changes, indicating no depth of planning on the part of the teacher himself, such as "Introduced new system of reading," "Made use of Ditto Directed Study Lessons in geography," "Purchased small sized globes for geography study," "Adopted more modern textbook," "Introduced more frequent tests," "Developed team competition among pupils by having small question-bees." The above are illustrations of relatively minor changes which teachers themselves considered experimentation, but which would not necessarily reflect a high degree of adaptability.

Similar replies were noted among the changes listed by teachers in better schools, but on the whole the proportion of teachers in a community who had changed their work enough to have consciously altered circumstances of instruction, at least to the point where they recognized these things in answer to our question, was a very interesting crude measure of the degree of teacher experimentation. We found one community, for example, in which only 14 per cent of the teachers listed any change in their work. In another community 88 per cent of the teachers noted changes in their work.

On the whole, this measure was found to have a significant relationship with the extent of adaptation in the community. No observable differences appeared in degree of teacher experimentation among the tax leeway groupings of communities or among communities classified as to size. Differences in adaptability of communities grouped according to the tax leeway and according to size were found to remain after adjustments were made for differences in teacher experimentation.

As with the opinion of teachers, the degree of teacher experimentation is definitely related to the adaptability of the school. This, of course, is to be explained by the training and background of the teacher and those factors which will contribute to his capacity to experiment and, as well, by the administrative and community circumstances within which the teacher must do his work. In view of the fact that teacher experimentation, no more than teacher opinion, explains a large part of our variation in the adaptability of schools, we must continue our search for other factors.

Recognition of Need

No relationship was observed between adaptability and the extent to which teachers had plans or had recognized needs for changes in the future. Teachers were asked the question, "What are some of the changes or new things which you would like to do in your work?" The extent to which teachers had spent enough time thinking about the matter to list worth-while things was another measure of the extent to which teachers were self-adapting in point of view. We have called the proportion of teachers in the community listing plans in reply to this question a measure of teacher initiative. It is also a measure of the extent to which teachers are aware of impinging educational needs to which adaptation is a response.

This measure was found to be uncorrelated with adaptability. This may be due to the fact that a poor teacher, the type one might expect in the unadaptable school, is apt to list inconsequential changes which she would like to make. On the other hand, other evidences that adaptability does not emanate from the professional staffs of our school systems, lead us to consider with favor the possibility that the professional material with which we have to deal in our schools is as imaginative in one community as it is in another. Possibly we have not facilitated the successful fruition of ideas. At least we know that a thoroughgoing curricular readjustment in the minds of the teachers, unaided and unencouraged, rarely becomes articulate and results in an adaptation in the school. Additional data suggest that in our least adaptable schools the personnel, even though lacking knowledge and experience and training which would produce fruitful ideas, are as capable of anticipating needed changes as those in the more adaptable schools.

Teacher Self-Appraisal

Among the questions asked teachers was "What things are needed by the school system as a whole?" Many of the reactions to this question had to do with community attitudes, activities of the administration, and other factors not immediately concerned with the teaching personnel itself. A tabulation of replies to this question

appears in Table 34; the following are concerned with personnel needs:

- Better attitude of teachers
- Better training and qualifications
- Better selection of teachers
- Increased salaries
- Fewer local teachers
- More teacher freedom in community
- More initiative and opportunity for originality
in schoolroom
- Salary recognition of merit
- More objective rating of teachers
- Abolition of teacher rating
- Reduced teaching load
- Increased number on staff
- Elimination of married women teachers
- Addition of special teachers
- Re-education or elimination of old teachers
- Greater cooperation among teachers
- More younger teachers
- More teachers with modern ideas in training

By and large, the percentages of suggestions which fell in the above categories were not related to the adaptability scores of the various school systems. Teachers were quite as ready to suggest needed changes in personnel in the highly adapted schools as in the poorly adapted schools. Similarly, they were as likely to emphasize personnel needs in wealthy communities as in poor communities, and in large communities as in small communities. There was one point, however, on which a difference appeared. A larger percentage of needs having to do with the personnel was reported by teachers in the Central and Western Districts of the state than were found in the Eastern District. It is necessary to report this finding without interpretation inasmuch as the writers have, thus far, seen no rational explanation.

A measure similar to the measure showing the proportion of teachers who felt changes were needed in areas of personnel resulted from the question, "What in your opinion have been the chief obstacles in the way of making changes?" Replies fell into various categories, one of which again had to do with problems of

TABLE 34

Replies of 2,416 Teachers to the Question: "What Are Some of the Things You Think Should Be Done for the School System as a Whole?"

TYPICAL REPLY	NUMBER OF TEACHERS
Vocational and trade courses	176
Reduction of class size	147
More adequate provision of supplies and equipment	136
A curriculum more practical and up to date	131
Special classes for retarded children	113
Unification and consolidation of curriculum	71
More elective courses	69
Increase in teachers' salaries	67
Increased number of teachers	61
Special rooms needed (gymnasium, shops, etc.)	59
More attention to character and personality of children	56
Ability grouping	54
More attention to fine arts (art, music, etc.)	51
Teacher freedom for initiative and originality in school work	51
Condition of special teachers	49
More flexible program	48
Improvement of present plant facilities	47
Special classes for gifted children	47
More discipline	47
More school buildings	46
More individual instruction	45
More clerical help needed	44
Reduction of teaching load	43
More supervisors	43
Revision of marking system	42
More stress on fundamentals	41
Kindergarten and pre-school education	41
Better physical education program	41
Revision of content of curriculum	40
Better equipment	39
Uniform salary schedule	39
Better classroom equipment	37
Less extracurricular work	36
More cooperation of teaching staff	36
Medical and dental clinic	35
More progressive curriculum materials	35
Elimination of politics in administration of schools	34
Salary schedule recognizing merit	33
Increased financial resources	32

TABLE 34 (Continued)

TYPICAL REPLY	NUMBER OF TEACHERS
Better qualified teachers	31
More administrative consideration of personalities of teachers	30
Closer relationship between home and school	29
Higher standards for pupils	29
More emphasis on reading	28
Better textbooks	28
More extracurricular work	28
More classrooms	28
Less criticism from administration—more constructive teacher as- sistance	27
Better coordination of elementary and high schools	26
Better cooperation and coordination among departments	23
More playgrounds and playground equipment	23
Better relationships between teacher and pupil	22
State or Federal aid	22
Differentiated course of study	21
Additional education courses	21
More intra-mural activities	20
General expansion of building program	20
Better qualified school board	19
Shorter school hours	19
Fewer subjects	18
More teachers with modern ideas	18
More trips and practical experiences	17
Reorganization of high school	17
Addition to buildings	15
Stimulation of community interest in school affairs	14
Re-education or elimination of old teachers	14
Closer contact with public	12
Less emphasis on athletics	11
Less uniformity in administration	11
All others with frequencies less than 10	547

the professional staff. A complete tabulation of replies appears in Table 35. These items are similar to the above. Ranked in order of frequency, those that have to do with the professional staff are as follows:

Teacher lack of interest
Too heavy teaching load

Too much attention to subject requirements—
tests, college entrance examinations, marks, etc.
Not enough special teachers
Selfish motives
General incompetence of teaching staff
Teachers too specialized

As with the index of teacher-appraisal of the importance of personnel problems, we find that this measure does not vary among communities of different financial resources, that it does not vary between large and small communities, and that it is not related to the adaptability of schools.

Teacher Originality

To yield an index of "teacher originality," teachers were asked the blanket question, "Where did you get ideas for changes you have made or would like to make?" Typical replies and their frequencies appear in Table 36. These replies can be classified in four groups:

Educational and teacher training institutions
Sources outside the local community and the educational system but not involving teacher training institutions
Sources within the local school system
Sources resulting from the personal development of teachers

In the last category involving sources developing within the activities of the individual teacher, are the following:

Professional literature
General literature
Original ideas
Common sense
Original research
Professional study
Introspection

These are the most frequently occurring types of explanations given by teachers for the origin of ideas in this category. They are arranged in order of frequency.

The proportion of all sources listed by the teachers which fell in

TABLE 35

Replies of 2,416 Teachers to the Question: "What in Your Opinion Have Been the Chief Obstacles in the Way of Making These Changes?"

TYPICAL REPLY	NUMBER OF TEACHERS
Lack of money	794
Overcrowded buildings and classrooms (inadequate school plant and equipment)	162
Public opinion	162
Traditionalism of administration (inertia, lack of understanding, of community, etc.)	159
Lack of teacher interest	158
Policy and attitude of the Board of Education	120
Too heavy teaching load	90
Community tradition	90
Lack of understanding or knowledge of public	88
Politics in administration	84
Administration not cooperative	72
Indifference of administration	65
Economic conditions	56
Conservatism of parents and citizens	51
Administration too inflexible (too many regulations, regimentation, etc.)	40
Incompetent administration (ignorance, etc.)	40
Objection by taxpayer	27
Social and cultural conditions of community	24
Lack of continuity and consistent policy of administration	22
Unsatisfactory tax base for schools	21
Not enough special teachers	21
Too little supervision (not enough supervisors)	18
Inadequate curriculum or course of study (revision needed)	16
Teaching staff incompetent	16
Selfish motives of teachers	15
Administration too progressive	14
Motives of administration selfish	13
Improper management of school funds	13
Community pride	11
Teachers not helped enough	5
Teachers too specialized	4
Too much centralization of authority	2

TABLE 36

Replies of 2,416 Teachers to the Question: "Where Did You Get Ideas for Changes You Have Made or Would Like to Make?"

TYPICAL REPLY	NUMBER OF TEACHERS
Professional literature (books, magazines, periodicals)	506
Teaching experience	445
Observation of other schools in system	288
College or university	233
Study of pupil needs and interests	195
Contact with other teachers in system	176
Summer school	162
General literature	133
Conventions, conferences, institutes, and other professional meetings	120
Original ideas	111
Special courses	96
Extension work	86
Experimentation	64
Other public school systems	51
Teachers colleges	49
Lectures	46
Principal	43
Study of children's interests	38
Superintendent	38
College or university professors	36
Suggestions of students	36
Local supervisors	35
Contacts with educational leaders	34
Examination of newer school books	33
Faculty meetings	33
Common sense	29
Study of industrial changes or social trends	28
Study of life itself	26
Demonstration schools	21
Contacts with people in professions, politics, industry, and the like	21
Work of private experimental schools	21
Training schools	20
Travel	20
Demonstrations by outstanding teachers in system	19
Research	17
Trends in education	16
Parents or adults of community	16
Local administrative bulletins	16
Community affairs	13

TABLE 36 (Continued)

	TYPICAL REPLY	NUMBER OF TEACHERS
Radio programs		11
Social contacts		11
Normal school		9
Experience in business or industry		9
From school surveys		8
Home life		7
Teacher study groups		7
Interest in professional advancement		7
Visits to museums, libraries, art exhibits, and the like		5
Original research or professional study other than college		4
Desire for increase in salary		3
Introspection		2

the above category varied among communities from only 8 per cent in one to 33 per cent in another. This proportion was taken as a measure of teacher originality. It was found not to have a high relationship to the adaptability of schools, although the relationship was almost high enough to establish certainty that it was not due to sampling error and sufficiently high to make it a strong hypothesis. One consideration of importance, however, is that the average originality measure is significantly related to tax leeway. Teachers in communities of high tax leeway show a greater tendency to contribute from their own personal development ideas for change. The relationship, however, is not high enough to predict with any accuracy one condition from the other. There is no appreciable relationship between teacher originality and size of community. When the differences in the adaptability measure due to teacher originality are eliminated, there are still highly significant differences in adaptability due to tax leeway and size. When all communities are treated as though they were of the same size and the same tax leeway grouping, there is still a marked relationship between adaptability and originality of teachers.

We have noted earlier that the part which teachers have played in the implementation of the nine adaptations studied in detail has been disappointingly small. It was noted that the cause may be

their training or the structural and administrative conditions in which they work. The importance of this question of teacher originality in the theory of local initiative leads us to seek in the above data a straw of encouragement. If teachers show more initiative in those communities with greater tax resources, large or small, it may indicate that the small part the teachers have played in the adaptation study in detail may not be as discouraging as it appears. It suggests that it may definitely be influenced by structural changes in the school system.

Teachers and Motivation

One cannot over-emphasize the importance of social factors limiting the efficiency of the individual teacher and influencing her capacity to operate effectively as a participant in adapting the local school program. The personality needs of teachers are frequently neglected in administrative and social circumstances which control their work and social life. The life of teachers is subjected to public scrutiny. It is limited by attitudes of school boards and influential citizens and community public opinion in general. In some communities teachers are underpaid; in others they are subjected to forced conformity to codes more severe than those demanded of other groups.³

In a recent study of personnel problems in education and the emotional maladjustment of teachers, the question was raised, "Do teachers have the freedom to exercise initiative and creative thinking in their profession to the point that they have a sense of personal worth based on the recognized value of the social roles they are playing?"⁴ An answer to such a question, as was pointed out, is influenced by conditions of employment, opportunities for recreation, adequacy of financial return, occupational security, and the extent to which a member of the teaching profession is subjected to various social pressures and controls.

³ Prescott, Daniel A., *Emotion and the Educative Process*. A report of the Committee on the Relation of Emotion to the Educative Process, Washington, D. C., American Council on Education, 1938; and "Realism, Purposing and Integration, in *National Education Association Addresses and Proceedings*, 1934.

⁴ *Ibid.*

One aspect of this problem quite definitely bears upon the adaptability of the school in so far as it depends upon activities of the individual teacher. The teacher's freedom for initiative might be expected to influence adaptability directly by changes which are thus brought about, and indirectly, as suggested above, by increasing his emotional adjustment and consequently his general effectiveness as a teacher.

An indirect method of viewing the types of objectives imposed upon the teachers by administrative and community demands was given some treatment in our field work. Teachers were asked, "As you see it, what are the rules for success for a teacher in your community?" Replies to this question were tabulated and classified as shown in Table 37. The typical reply for each category is listed in this table and replies appear in the order of frequency.

In examining the frequencies of the types of responses in Table 37, one can see that there are many matters of a non-academic nature which teachers feel are necessary for success in their tasks. The fact that a high proportion of teachers feel it important to be active in community affairs is probably a healthy condition. Also, it is important that teachers feel that they should understand and have sympathy with and interest in children in order to succeed.

INITIATIVE AS A SUCCESS DRIVE

We find exceedingly low frequencies with which teachers feel success to depend upon vision (16 cases), initiative (84 cases), energy (43 cases) and personal adaptability (69 cases)—attributes which would seem to contribute to teacher initiative and teacher originality. In each community the proportion of teachers mentioning these items was calculated, and this proportion was taken as an index of the extent to which community and professional conditions and personal factors of teachers motivate them to "adapt" in so far as success in their work itself is an important motive.

No difference was found between small communities and large communities in the average degree to which teachers referred to the personal initiative type of rule for success. However, the personal initiative motive appeared to be markedly associated with the financial grouping of communities. The six communities with

TABLE 37

Replies of 2,393 Teachers to the Question: "As You See It, What Are the Rules for Success for a Teacher in Your Community?"

TYPICAL REPLY	NUMBER OF TEACHERS
Good teaching or teaching ability (doing the job well)	618
Understanding, having sympathy and interest in children	475
Activity and interest in community affairs	451
Cooperativeness	363
Character and personality	286
Morality	254
Good discipline	179
Scholarship	160
Sociability	157
Satisfying parents, children and authorities	146
Knowledge of subject matter	142
Gaining respect of parents	134
Openmindedness—tolerance of community views and conditions . .	121
Taking courses—summer or extension	117
Ability to get subject across	116
Capacity for hard work	108
Willingness to devote after-school hours to school work without recompense	103
Reservation in expressing personal views	100
Fairness	91
Initiative	84
Studying home conditions	71
Personal adaptability	69
Self-restraint	63
Neatness	61
Being a good sport	57
Gaining respect of pupils or students	54
Responsibility	48
Energy and personal drive	43
Patience	42
Kindness to pupils	40
Minding one's own business	38
Common sense	37
Optimism	24
Vision	16
Dignity	15
Avoiding community social activities	12
Travel	10

the very lowest financial resources did not have the lowest rating on this measure, but the wealthiest communities were the highest. The trend was definite, and the variation of means among community finance groupings was statistically significant.

The variation among large and small communities was not significant. There was, however, a noticeably low proportion of teachers in small communities in the eastern division of the state who reported rules for success of the personal initiative type. In large communities no geographical differences were apparent. On the whole, this measure was found to be positively associated with adaptability of communities. In other words, in communities which have the most adaptable school programs, there tends to be a greater number of teachers who feel it is necessary to possess qualities of personal initiative. It must be mentioned that this relationship, although marked, fails to explain variations in adaptability found among communities classified as to wealth and financial resources and between communities classified as to size.

TRADITIONAL OBJECTIVES

Among the replies to the question concerning rules for teachers' success were a group listed, in some cases, in a mood of resentment on the part of the teacher. Replies of the type, "willingness to do work after school," would be classed in this category. Other items were thought to have a negative effect upon adaptability in the sense of representing conserving qualities, such as "good discipline," an important objective in the traditional school, and "knowledge of subject matter," also an item more narrowly conceived in the traditional school.

It should be understood that in listing these items there is no implication that these are not important qualities in any school situation. The point is rather that they serve other objectives, for example, stability, rather than adaptability. As such they might be considered to conflict with adaptability only to the degree that they become overemphasized. As it turned out, however, no relationship was found between adaptability of the individual school and the number of teachers whose replies fell in this category. There was a tendency for poorer communities to have a slightly higher

percentage of teachers with replies in this category, but no significant difference was observed between the financial resource groupings and between large and small communities.

This suggests the possibility that these qualities are not emphasized to the point of retarding adaptability. Our observation in the field work, however, questions this conclusion. It would seem more probable that it means that the emphasis on these qualities may have been a slowing down factor in adaptability in all types of communities.

CONFORMITY TO COMMUNITY PATTERNS

Another classification of success items is similar in nature but represents more specifically the feeling of teachers that they must conform to their professional and community social contacts. We have 38 teachers who feel it important to "mind one's own business"; 12 teachers, to "avoid community social activities"; 100 teachers, to have "reservation in expressing personal views"; 63 teachers, to possess various types or qualities of "restraint." These items tend to reflect the extent to which teachers feel compelled to take an attitude of resignation and to accept conformity to certain restraints. Perhaps teachers who emphasize these qualities pay less attention to qualities which would contribute to personal adaptability, and it is quite conceivable that they produce effects upon the personality of the teacher which limit his effectiveness in the school. At least the possibility was considered great enough to demand statistical analysis. Hence the proportion of items in each community in this grouping was also determined and related to the adaptability of the school. Surprisingly enough, the relationship was not found negative. Differences among the districts grouped according to financial resources were noticeable, but they were not significant. The greatest proportion of teachers indicating resignation to conformity were found in the third lowest finance group, and the lowest proportion, on the average, was found in the third highest finance group. This illustrates that the relationship did not follow financial groupings. On the whole, however, there was a tendency—a marked tendency—for *better schools to have a higher percentage of teachers reporting replies of this type*. And the gen-

eral tendency, although not marked, was for the wealthier communities with more adaptable schools to have a higher percentage of teachers reporting such items. We must note, therefore, that in schools as they are operating today there appears to be an advantage, educationally, in a teacher—though possessing other qualities—whose point of view accepts, however unwillingly, the type of control placed upon him in the society in which he functions.

PERSONALITY CHARACTERISTICS

A very large number of replies to the question on rules for success fall into a slightly different category and bear out what has been said above. There are a number of items which deal more or less with personality traits. Thus from Table 37 we would include such items as the following:

Common sense	Be optimistic
Be a good sport	Have patience
Have character and personality	Be fair
Be sociable	Have dignity
Be cooperative	Have responsibility
Have neatness	Have good morals

The proportion of items in this category was also studied in relation to adaptability. There was no variation among communities grouped as to financial resources, nor between the large and the small places. On the whole, there was no correlation between this personality trait index and adaptability of the school. The variance of adaptability which can be attributed to this measure is negligible.

Men Teachers

The proportion of men teachers in school systems included in the small sample of thirty-six communities varied from 0 to 50 per cent. At the turn of the century the prevalence of women teachers in the American public school was commented upon as follows:

Even more striking than the presence of girls in the boys' schools is, perhaps, the great number of women who figure as teachers. The employment of women teachers began in the Northern States after the Civil War, because as a direct result of the decimation of the population there were not men teachers enough. Since that time this practice has increased throughout the country; and although

high schools generally try to get men teachers, the more elementary schools are really wholly in the hands of women. Men do not compete for the lower schools, since the competition of the women has brought down the wages, and more remunerative, not to say more attractive, situations are to be found in plenty. Women, on the other hand, flock in in great numbers, since their whole education has made them look forward to some professional activity, and no other calling seems so peculiarly adapted to the feminine nature.⁵

The situation described in the above paragraph is certainly more marked today.

There is a decided tendency toward geographical differences in the proportion of men teachers in the school systems. It cannot be said, however, that there is any difference among the groups of communities classed on the basis of wealth. The question of financial resources of the community is not associated with the proportion of male teachers.

The geographical differences are very interesting. The western division of the state has by far a smaller proportion of men teachers in the smaller schools than is found in other divisions. This can be explained by the fact that in the western division of the state the small schools are usually rural schools, in our sample at least. In the central division of the state one finds a greater proportion of men teachers in the small schools; these smaller communities of this division are mostly of the industrial or the composite type.

It must be pointed out that the correlation between the proportion of men teachers and adaptability of the school is negligible. The relationship, however, tends to be positive. This would appear to have a bearing on the theory frequently advanced that having men in the school tends to introduce certain elements of leadership and new types of activities not likely to be touched upon through exclusively feminine interests. However, when the element of financial resources is eliminated, the relationship turns markedly negative, although not significantly so.

Two factors considered in this discussion are undoubtedly confounded with other considerations. The data on individual communities which might explain the negative relationship between

⁵ Münsterberg, Hugo, *The Americans*. New York: McClure, Phillips & Co., 1904, p. 375.

communities of comparable financial resources suggest possible explanations. Communities of the industrial type with relatively low community social status, but with average or better economic resources are often found to rate low educationally. Such communities have emphasized vocational work and accordingly have engaged a relatively high proportion of men teachers. The addition of conventional vocational service and the increase in the proportion of men teachers would not necessarily affect the general adaptability of the program. There are many exceptions, but the above remarks seem pertinent.

Marital Status of Women Teachers

On the whole, there is no significant association between financial resources of the communities, or size of communities, and the marital status of women teachers. Also, on the average there are no geographical differences. In the east and the central divisions of the state there are noticeably larger proportions of single teachers in large communities than in small communities. The opposite is true in the western division of the state, where, on the average, a greater proportion of the teachers in the small communities are single. (As was pointed out above, this was a statistically significant difference, and could not be explained adequately from our materials.) There is a zero correlation between the percentage of single teachers and the adaptability of the school, and differences in the marital status of women teachers, as might be expected, does not explain relationships observed between adaptability and tax leeway or size of district. We are justified in concluding, therefore, that, in the schools operated as they are today in Pennsylvania, whether the married teacher should be tolerated in the public schools is an issue to be settled on considerations other than adaptability.

Teacher Turnover

A simple measure of the turnover of teachers was determined in terms of changes taking place between the academic years 1936-1937 and 1937-1938. It would have been more satisfactory to use the averages of a number of different years had that been feasible.

The turnover was determined according to a simple relationship where:

A equals total number of teachers on the payroll 1937-1938;
B equals total number of teachers on the payroll 1936-1937;
C equals number of new teachers employed for the first time by the system in 1937-1938.

With the new teachers (*C*) and the teachers on the payroll for the first period (*B*), each community would have had $B + C$ teachers in 1937-1938 had there been no replacements. In other words, allowance in our calculations must be made for the fact that some new teachers replace others and that some new teachers represent additions to the staff or the creation of new positions. Subtracting the actual number of teachers in the latter year from the number there would have been had none of the new teachers been replacements yields the number of teachers who, in the latter year, were employed to replace those who were left in the former year. Symbolically we may write:

$$\text{Turnover} = (B + C) - A$$

To express turnover as a relative, it was calculated in terms of its percentage of the total number of teachers employed in 1936-1937. That is, percentage teacher turnover between the years 1936-1937

$$\text{and 1937-1938} = \frac{(B + C) - A}{B}.$$

As might be expected, the highest turnover was found in the poorest and smallest districts, but the variations are so great that it is not statistically possible to say that turnover is highly related to financial resources of communities or to their size. There were several districts of the wealthier type with approximately 10 per cent teacher turnover, and although one small community with low resources had a turnover of 36 per cent, other small and poor communities had no turnover for the years in question. The greatest turnover was found, and significantly so, in the rural communities. This, no doubt, is explained by the fact that these schools attract the younger teacher who remains but a few years in the profession.

There is only a slight, and not statistically significant, negative

correlation between turnover and level of school program. That is to say, on the whole there is a very slight tendency for communities without much turnover, or communities with the least amount of turnover, to have better schools. The relationship that exists is completely explained by factors of wealth and size alone; for when communities are treated statistically, as of the same ability class and the same size class, the correlation disappears. Above all, it is not to be inferred that turnover explains the significant differences noted among tax leeway classes and size classes of communities. We shall need to look for other explanations of these relationships.

Age of Teachers

Administrators and various staff members in communities were asked what their experience had been with regard to the relative effectiveness of the older versus the younger teacher. As will be noted in Table 34, a number of teachers list among changes needed for the school "re-education or elimination of old teachers." Needless to say, it is not the age of the teacher that determines his effectiveness. The superintendent of the community which scored highest in adaptability had found it possible to develop a highly effective program of curriculum revision in which his attack was entirely one of making best use of the personnel he had. With the leadership and supervision that this one superintendent was able to institute in his program it was possible to overcome such handicaps as existed because of a number of older teachers who had developed out-worn habits of classroom procedure over an extended period of service. Interviews with these teachers where, in this particular community, reaction had set in against the "progressive program" revealed that they had completely and unanimously become the chief supporters and defenders of the new program.

And still another technique was found in a second community which also had made considerable headway in adapting. The superintendent explained that his scheme was to staff the elementary grades with intelligent, alert, attractive, well-trained younger teachers, the very type he would expect to leave for better positions or

to leave for marriage after a short period of service. He felt that by having a continuous fresh stock of new young blood in his system he was making for a lively "progressive" adaptable program.

From our statistical data there is a positive and significant but not high relationship, on the whole, between the median age of teachers in a community and the adaptability of the school system ($r = .339$). The uninitiated might conclude that older teachers are, therefore, to be sought in the school system. The relationship, however, may be due to factors related to age rather than to age itself. For example, the younger teachers are usually found in the smaller school districts, and the smaller school district has a less adaptable program from a complex of causes of which the age consideration may be but a small part. We find a slight but hardly noticeable tendency for younger teachers to be employed in the communities with least financial backing. The difference between the large and the small community with respect to the age of teachers is highly significant. When the influence of financial resources and size of community is held constant, the relationship between median age of teachers and adaptability completely disappears.

It appears that the entire distribution of the age of teachers falls in the same pattern as that for median age only. In order to check upon how old the youngest teachers were, an analysis was made of the first quartile point in the age distribution for each district in terms of the adaptability of the district, its community type, its financial resources, and its size. A difference was found in the first quartile age between the large and the small districts, a marked over-all relationship was found between adaptability, which completely disappeared when factors of size and economic resources were held constant. The same is to be said for a measure of how old the oldest teachers are as measured by the third quartile point in the age distribution.

Level of Training of Teachers

As measured by the average number of years of training above high school, teachers in the large districts have had a significantly greater number of years' training on the collegiate level. There is also a definite and significant relationship between the financial

resources of the community and the training of teachers. The wealthier places are able to attract teachers with more training. Geographically, however, there are no observable differences in level of training.

The single measure dealing with teachers⁶ which was found to have the greatest relationship with the adaptability of a school was the average number of years of training of teachers beyond the high school. Yet this relationship completely disappears when the financial resources and the size of districts are ruled out. In other words, differences among districts in the training of teachers is to a very great extent explained by differences in size and wealth. It is important to point out that as a result we find that the training of teachers goes far in explaining the significant variation among communities of varying financial resources. When the variance among tax leeway groupings is adjusted, by statistical methods, to allow for differences in the training of teachers, the results no longer remain highly significant. Even though comparisons between large and small schools are adjusted for differences in training of teachers, we find that there still remains a significant difference in adaptability. It must be emphasized that the level of training of teachers is the only personnel factor, with the exception of the question of outside experience,⁷ great enough in its relationship with adaptability and finance resources to offer statistically, to a considerable degree, an explanation for that part of the relationship of adaptability to finance groupings which might not be attributable to chance.

Another analysis was made, using as the measure the percentage of teachers with more than four years of training beyond the high school, that is, the percentage of teachers who had taken graduate college work or the equivalent. The relationships paralleled very closely the relationships of the earlier measure—average years of training above the high school. No minimum average level necessary for adaptation was revealed by these data. They indicate, however, that average training is not an adequate measure of the adaptability of a given school staff.

⁶ Outside the measure of teacher opinion.

⁷ See Table 70, pp. 465-466.

Training and the Poll of Opinion

We have considered in the above sections the relation of training of teachers to the adaptability of schools in which they serve. This section deals with the relation of training to the up-to-dateness of teachers as measured by the "Poll of Opinion on What Our Schools Should Do."

To throw light on this issue, two hundred teachers were sampled at random. Along with training and the "opinion" score for each the grade of school taught (elementary or high school) and the amount of experience were recorded. A summary of this sampling appears in Table 38. Note that a majority of high school teachers have five or more years of training above the high school and that a majority of elementary school teachers have less than four years of such training. We have included in this table averages of years' experience in teaching in order to check against the common notion that older teachers certified under plans of former decades when a two-year normal training or less was required represent *en bloc* a conservative front. In our analysis we wanted to be sure that proper allowance was made for the apparent differences between the divisions of the school in which a teacher teaches and the length of time since he received his training. This was done by analysis of variance and covariance, with the following results:⁸

1. The adaptability-mindedness of teachers as measured by the poll of opinion varies with *high statistical significance* among the three training level classifications.

2. Differences between elementary teachers and high school teachers on the opinion measure lose their statistical significance when the training differences are removed.

3. There are still significant increases in opinion scores of teachers as training level is increased after allowance is made for the difference between elementary and high school teachers.

4. There is a tendency for teachers with the longest service period to be most conservative as measured by the poll of opinion. The correlation between opinion and years of experience is very slight, although statistically reliable ($r = .19$).

⁸ See Supplement B, Note 18, pp. 494-496.

5. With allowances for differences in years of experience of teachers in addition to allowances for differences between high school and elementary school teachers, the average superiority of teachers with four years of training and five or more years of training is increasingly evident.

The reader must be cautioned, of course, in the interpretation of the above that the analysis has to do with teacher averages.⁹

TABLE 38

Score on Poll of Opinion and Years' Experience of One Hundred High School Teachers and One Hundred Elementary School Teachers Grouped According to Training Above the High School

TRAINING ABOVE HIGH SCHOOL	ELEMENTARY TEACHERS			HIGH SCHOOL TEACHERS			ALL TEACHERS		
	Num- ber	Opin- ion Aver- age	Experi- ence Aver- age	Num- ber	Opin- ion Aver- age	Experi- ence Aver- age	Num- ber	Opin- ion Aver- age	Experi- ence Aver- age
Less than four years	73	70.9	12.3	6	74.7	22.3	79	71.2	13.1
Four but less than five	19	75.1	10.5	35	73.4	11.6	54	74.0	11.2
Five or more	8	78.3	13.9	59	76.8	12.7	67	76.9	12.5
All teachers	100	72.3	12.1	100	75.5	12.9	200	73.9	12.5

Localism and the Recruitment of Teachers

In preliminary visits to communities in the field, the writers indulged in speculation with reference to the high degree of provincialism observed in certain very unadaptable communities. The question was raised whether it might not be due to the fact that there were a very large number of local teachers in these communities and the fact that a large percentage of the home-town teachers came into their present positions directly from teachers colleges without previous outside experience. It was thought that the localizing influence of the home-town teacher who had not had contacts with educational systems outside would have a bearing

⁹ See Supplement B, p. 494.

upon the adaptability of the school. Consequently we developed two measures of localism in the staffing of schools. The first was a measure of inbreeding—the percentage of teachers residing in the community before employment. The second was a measure of the degree to which teachers had had outside experience. In the latter case teachers were asked to give the total years of experience they had had in teaching, and the years of teaching they had had in the system in which they were employed at present. All teachers whose total experience exceeded the years of teaching in their present system were considered to have had outside experience.

Differences among communities of the six tax leeway groupings of Chapter VII in the proportion of local teachers were marked but not significant. There is a tendency for a greater degree of inbreeding in the poorer communities. There is much less inbreeding in the wealthiest communities, which, it is to be remembered, are most adaptable.

There is a slight tendency, but not a significant one, for more inbreeding in the larger places than in smaller places. There were no geographical differences in the extent of inbreeding which, on the whole, has been found to be rather high in Pennsylvania. In one community, a residential suburb, only three per cent of the teachers had previously been located there. Approximately half the teachers in the average community are local teachers. In one district 100 per cent of the teachers were previously located in the community in which they were teaching. There were several cases of communities with inbreeding of more than 80 per cent.

The relationship between inbreeding and adaptability is negative, although not highly significant. The communities with least inbreeding tend to be the most adaptable communities. This checked the hypothesis that had been developed in preliminary field work. This negative relationship does not arise from the elements of wealth and size, for a noticeable negative relationship between inbreeding and adaptability remains when communities of comparable size and comparable financial resources are treated together.

There is a marked but statistically insignificant correlation between proportion of teachers with outside experience and wealth.

The wealthiest group of communities is one with by far the greatest proportion of teachers, on the average, who have had outside experience. There are no differences between large and small schools in this respect, nor are there differences among the three geographical divisions in the state. There is a significant positive correlation between the percentage of teachers with outside experience and adaptability. But because the function, percentage of outside experience, is related to differences in the financial resources of the communities, we find that when communities are treated with wealth and size held constant, the relationship between adaptability and outside experience completely disappears. Furthermore, the proportion of teachers with outside experience is one of the elements which definitely explains the fact that wealthier communities are more adaptable, because it is the wealthy community that has a larger proportion of teachers from outside. With reference to this item it appears, therefore, that the financially favored communities are in a position to employ teachers who have passed through a preliminary period of experience and who have proved their worth elsewhere before becoming members of the local professional staff. This, in large part, explains the advantage which the wealthier community has with reference to adaptability in so far as matters regarding teaching personnel bear upon it. There are no differences among communities as to size in the question of outside experience, and this factor, moreover, does not explain differences in adaptability between large and small schools.

Teachers Adapting

The case studies of teachers gave an intimate view of some of the difficulties faced by those who would find in the teaching staff either leadership or strong support for needed change. Fears, real and imaginary, of administrative disapproval or of financial insecurity were frequently found. Vested interest in the field of training frequently appeared as a deterring factor. Persons who retarded change and who might easily be passed over as lazy, incompetent, stubborn, or old-fashioned, were found in many instances to be suffering from conditions that could be ameliorated to their own advantage or to the advantage of their schools. Obviously

the task of the administrator as a mental hygienist is a larger one than most people realize. How large it looms in the whole picture cannot be told from this investigation.

There follow typical cases illustrating laggards on the one hand and ready followers and active leaders on the other.

LAGGARDS

Most of the administrators we interviewed pointed out teachers whom they described as "stubborn," "old-fashioned," or "immersed in routine." With a few exceptions administrators were not going back of these everyday expressions, yet behind them there are complicated areas of human behavior that would be interesting to explore deeply. A few administrators had looked into the life histories and contemporary settings of some of their rigid teachers. With the help of these exceptional administrators and our own interviewing we hope to have indicated the need and direction of further studies.

Case 1. A first grade teacher refused to follow the suggestion of her supervisor that she arrange the seats informally rather than in the traditional rigid rows. She "didn't like them that way." She was "stubborn." During a long talk with her, the primary supervisor discovered that both the principal and the janitors in her building wished the seats to be in straight rows. This teacher had been brought up in a home where the authority of the male head is not usually questioned. She preferred to appear stubborn before a woman superior whom she respected than to raise an issue with a male head, and male underlings, all of whom she disliked.

Case 2. A second grade teacher imposes the same rigid and precisely scheduled set of drills on all her children. For many years her room was practically barren, and is practically barren now. Everything she does is on exact schedule. The supervisor finds it very difficult to talk with her because she resents having this schedule disturbed. As long as the children are meek and attempt to do what she tells them to do, she is satisfied. Practically the whole of her program consists in hammering in the traditional skills in spelling, reading, writing, and arithmetic through repetitive drill. Rebellious and unhappy children are removed from her

room by the supervisor. One of her exercises is to make the children sit with folded hands until all are absolutely quiet. She slaps those who do not submit.

When the supervisor attempted to win this teacher's support to the child-centered point of view, she replied: "I myself never had a real childhood. I can't see that (referring to the idea of treating children differently—as individuals); I must go on as my *conscience* tells me. I'm not interested in how children differ."

This teacher is an only child. Her mother is dead and she now does housework for her father—"a slave like her mother before her." Her work at home is precisioned in the same manner as her class recitations in school. Her childhood was largely an experience in submission to strict discipline and was extremely narrow, centering mostly in the home and domestic duties, with one departure—her teacher training and subsequent teaching.

Case 3. An elementary supervisor attempted to persuade one of her older teachers to teach reading with more regard for differences in readiness between various pupils. She wanted especially to have the better students do more "pleasure reading." This teacher objected violently and took this suggestion as unjust criticism. Fortunately the supervisor knew her well enough to diagnose some of the factors behind her hostility.

The teacher had been one of the favorites of a former superintendent and had been liberally praised by him. This fact alone would explain some of her hostility to new ways but, in addition, her life was an exercise in repression. She was an only girl among several brothers and found very little congenial social life in her own family. She had almost no contact outside the family. She had few pleasures and led a narrow existence, most of which was spent in specialized reading in the field of English literature. Her family was a model of the type of strict discipline which bears especially hard on the women. The supervisor had never known her to laugh heartily.

From these fragmentary bits of information we can piece together a life history running almost entirely in the direction of obsession with discipline, routine, and precision. Prolonged interviews with greater rapport would be necessary to show how various

mechanisms (projection, regression, etc.) were carrying over this way of life into her teaching. There are indications that she was not merely acting toward children as strictly as she had been treated in her home. For example, she usually demanded letter perfect exercises in composition, and when she discovered the slightest mistake she tore up the pupil's paper with a cruel show of temper. The carry-over was not simple imitation of her own childhood. In addition, her discipline was possibly giving her satisfactions which helped to compensate for a badly frustrated life.

Case 4. One of the elementary schools visited had a ten-minute homeroom period each morning. A member of the staff noticed that nothing was going on in one of the rooms. Instead of having students make class announcements, sing songs, and ask questions, the teacher in charge was simply preserving "order and quiet." The children squirmed in their seats or sat passively. The teacher's clothes were in harmony with her classroom behavior—both were in style thirty years ago. It was discovered that this teacher lives with a tyrannical older sister who is strongly resentful of any sign of breaking away from the days when they were children together. As a result, this teacher wears approximately the same high-topped shoes and pleated skirts that she wore thirty years ago and her teaching has apparently kept in step.

There is a similarity among these cases which was not noticed until they were assembled. Most of them indicate a connection between stubbornness and submersion in routine on the one hand, and a childhood repressed by authoritarian parents on the other. It would be interesting to find a number of teachers with similar family backgrounds whose teaching is highly adaptable, and to look for factors which changed the outcome.

READY FOLLOWERS

It was much more difficult to find adaptable teachers who, in a few interviews, could trace their receptiveness to new ideas to any general features of their personality and its genesis. In general we have found it easier to find hindrances to adaptability than reliable favorable factors. Being adaptable is a much more compli-

cated state than being stubborn or lethargic or lazy. The cases of adaptable teaching described below are only straws in the wind.

Case 1. This teacher was the only child of solicitous, well-meaning, conscientious parents. Very early she resisted the strict discipline which in her school took the form of sitting quietly for long periods of time. She was somewhat "nervous" and unable to follow the teacher's instructions. One day her mother came to see the teacher and the teacher asked the mother to make the child stay in her seat. Her mother took her home and gave her the only whipping she ever experienced. She summed up the effect of this "traumatic experience" when she said: "Until normal school, I was what the teacher wanted me to be. This experience gave me a feeling that I wasn't to question what my superiors told me."

This teacher has rebelled very strongly against the disciplinary method which almost ruined her life and teaching, and she converted what for many people would be a permanent inhibition into a powerful stimulus to follow the whole child-centered movement. She writes for publications, she published a child's reading book, and is now in the process of completing requirements for the doctorate. She hopes to be a primary grade supervisor. She still lives with her parents but will soon throw off this "drag" and will travel widely and study in a number of different universities. Possibly her highly adaptable teaching is a constructive expression and outlet for the piled up resentment toward her parents and teachers.

Case 2. One of the older teachers who was pointed out as being particularly adaptable recounted in some detail the story of her change from the traditional teacher to an activity teacher. It is interesting that most of the teachers pointed out by supervisors as having changed from traditional to modern teachers were unable to recall that they had ever been traditional.

This teacher remembered having begun by asking for the removal of a row of unneeded desks to make room for more student activity. She did not do this in terms of any ultimate objective. She never had before her in her changes any coherent philosophy of education. As she put it, "one thing led to another." She collected old tables and built up a classroom library. She received no special encouragement from above nor any definite opposition. Her super-

visor warned her that her work was all right, provided she went slowly, meaning that she must not change too rapidly from the old ways. She began a story-telling hour and brought into the classroom many objects illustrating the items mentioned in the story. About 1923, she spent a summer at Columbia and was surprised that many of her attempts were in actual practice already, and here too she learned much more. She converted parents as she went along: "I always feel I can do a great deal with parents. I got across the idea that this was not stopping to play."

At first she said her departures were mainly a different method of attaining the older objectives—free reading skill and vocabulary. Then she gradually came to the point of view that reading was less important in the first grade and that character traits were much more important. She is not aware specifically of the factors that brought about this change in view, but a very dull first grade was possibly a critical point. She went to each parent and explained that the children could not do work traditionally expected of first graders and she substituted a partial activity program in place of uniform reading. She found that the impetus to do new things came from her desire for some change in everyday routine, and also from the fact that the children seemed to enjoy the newer things more and to develop certain character traits through the combination of facts and play experiences. She is one of the few teachers of her community who consistently visits other schools. She reports that she looks upon each class as probably being different from previous classes in requiring new treatment. Her whole life is school-centered in a way quite different from those teachers who glory in discipline.

Dynamic Leaders

Dynamic leadership was found a much rarer phenomenon than willing followership. One outstanding case was noted of a teacher who had thrown his whole life into bringing about a certain change. He carried on the new activity on a shoestring, supporting it personally with his own money and the time from his holidays. Eventually he brought it into full fruition by carrying the major load of a city-wide campaign for new buildings. Thereafter it continued to be his life. He amassed a personal fortune of no inconsiderable

size and invested it in the activity. On being asked what could be done to bring about needed change, he advised: "First find a nut." On the subject of developing dynamic leaders we have no more than this to offer.

Adaptability as Human Engineering

The kinds of factors briefly indicated in this chapter are of interest for this study in a variety of ways. First, unless dealt with directly, these factors are circumstances which any program of adaptability must take into account. Whether the agents of initiation and diffusion be state or local, schoolmen or laymen, administrators or teachers, they must work with other individuals whose personality traits they can seldom ignore. In one of our communities any important change in the schools depended on knowing how to gain the approval of a city boss. It is obvious in this case that "educational" reasons for change which would appear convincing to educators could not be used with this individual. And usually school people cannot be reached merely through educational theory (e.g., the junior high school). One may venture the general hypothesis that persons interested in diffusing an adaptation would find a knowledge of personality factors, apart from any control over them, often indispensable and always helpful.

"Personality diagnosis" is an approach that is particularly appropriate for a local initiative state like Pennsylvania. Local boards, administrators, and teachers are relatively free from centrally administered and detailed regulation of their schools. They are free to make a great many important decisions affecting adaptations, which is another way of saying that various features of the whole personality of these people exert an influence on the adaptability of their schools. We must again emphasize that important as the general structure may be in facilitating adaptation, whatever the conditions, the adaptation is ultimately made by persons.

Second, these factors are in many cases subject to some degree of administrative control. Since this study is especially concerned with the possibilities of administrative control in the interests of adaptability, personality factors thus take on added significance.

Absence of cost is another of the interesting features of this

group of factors. Their control seldom requires additional expenditure—usually only knowledge of them and its practical application is required.

Field work uncovered several examples of the application of personality knowledge in the effort of administrators to put through adaptive changes. These instances bring out some of the implications of the preceding chapter.

“Knowing how to handle people” is the popular way of referring to most of the steps taken by administrators who are concerned with the personnel problems of adaptability. This is usually said with the following implications: (1) “handling people” needn’t be studied—it can be picked up merely by “experience”; (2) it cannot be taught—say, as part of the training of superintendents; (3) it is a minor factor in the sense that if conditions are favorable—high expenditure, good teacher training, etc.—it will “take care of itself.”

But the limited field observations possible in this study are sufficient to raise serious doubts about all these assumptions. The superintendent who seemed most adept at human engineering had made a hobby of popularized psychology—he supplemented reading with “experience.” Other administrators with many more years of “experience” seemed almost wholly unaware of difficulties and techniques in dealing with teachers. One such administrator even prided himself on avoiding any personal knowledge of his teachers.

An increasing number of school people probably recognize that much of the whole personality goes unrecognized and uncontrolled and yet is a powerful influence. But a large number also cling to stereotypes associated with terms like “will power,” “self-control,” “listening to reason,” “a person’s feelings are his own business.” People recognize their “private” problems and somehow can “manage” them. This characterization is often supposed to apply especially to “well-educated” people. Varied as people’s backgrounds are, they seem to be uniform to the extent that a large sphere of human behavior is regarded as “one’s own business,” and as something that each person is supposed to “take care of” himself. These correlative notions of privacy and self-sufficiency, will power and

reason, "imbedded" in the culture, are serious obstacles to the acceptance by teachers and administrators alike of a program of supervision which takes account of various unrecognized features of the personality: rigid habits, suggestibility, transfer of blame, displaced aggression, inferiority feelings, and the like.

Another factor hindering the spread of whole personality administration, in schools and elsewhere, is a specious use of diagnostic labels. A teacher who is extremely shy and self-critical is said to suffer from an "inferiority complex." A teacher who clings to the old ways is often called "just stubborn." Other labels of this kind include "cussed," "sensitive to criticism," "high-strung," "temperamental," "a bundle of nerves," "lazy," and the like. Field workers constantly ran into expressions of this kind and almost invariably they represented the terminus of the administrators' insight and curiosity. Seldom did we find efforts to fill in the life history and contemporary backgrounds of these "symptoms." Labels like those above only served to satisfy a fairly uniform human desire to "explain away" difficulties.

When people refer to the role of a given individual, they frequently sum up his activity by saying "personality always enter into these things." Behind this phrase—used alike by laymen and educators—lies a huge variety of "psychologic fact" which is not wholly chaotic. These individual personalities interact within certain limits set by the nature of the organism, the "culture," and various types of personality configuration.

We suggest that it is not enough to say that "personalities entered into the coming of this or that adaptation." The "play of personalities" which to the participants and local observers seems so unique and particular may, to an observer from the outside, tell a story in American culture and "personality integration." We are thoroughly in accord with Prescott's statement:¹⁰

We are in great need of broader studies covering a number of school systems and a great number of teachers. The studies should include: locating teachers having emotional difficulties; pairing them with others of similar intelligence, training, and experience who show good emotional adjustment; recording and evaluating

¹⁰ D. A. Prescott, ed., *Emotion and the Educative Process*, p. 266.

significant occurrences in classrooms with comparable groups of children taught by these paired teachers.

Summary

Teachers in general are not greatly concerned with school improvement. They have seldom assumed the role of leader in the past, and concurrently seem to be assuming it less often. Follower, supporter, and neutral—these were their typical roles in the past. Neutrality, ignorance of need, followership—these are the roles of the present personnel. Where they have led it has been usually in a change in their own field, or one relieving them of onerous tasks.

When we seek to find what features characterize adaptability and unadaptability of school systems, we discover that the more adaptable are characterized by teachers who rate high on the poll of opinion *What Should Our Schools Do?*, teachers who have been interested in experimentation, teachers who have assumed that adaptability is one of the essentials for success in the community, teachers who are highly trained, teachers who accept the place in the community that the community expects them to take, and teachers with experience outside the school system in which they are now working. There are some indications also that the more adaptable schools are characterized by teachers with originality, that there is somewhat less inbreeding and somewhat less turnover, although these last three items do not show significant relationships within our sample of thirty-six communities. So far as our measures show, such factors as the recognition of need for change, belief in the need for a different type of personnel, and belief that the community expects a traditional pattern in the school, have little to do with adaptability. Similarly, our measures of personality and age show no relationships with adaptability nor was any relationship indicated between the proportion of the teachers who are men and the proportion of women teachers who are married.

In spite of the fact that our measure of personality traits shows no relationship with adaptability, it is clear from our case studies of individuals that the unadaptable teacher is often a serious psychological problem for the administration, and that training of school administrators should more fully take this into consideration.

Public Participation Within the Local Unit

IN STUDYING the status of the nine adaptations in forty-eight communities in Pennsylvania, communities which had made the adaptation were classified according to whether the precipitating influence was from among lay individuals or groups or from among professional educational workers. Table 39 summarizes the classifications of communities which have made introductions of the nine adaptations according to lay and professional inception. We see, first, that in most cases initiative has been taken by professional groups or individuals. Of the 148 classifications of specific changes made in schools, 119 were attributed to professional leadership and only 29 to the leadership of other community members.¹ Reference has been made above to the high frequency with which kindergartens result from parent demand. It is not surprising, therefore, to find that among seven communities in which classifications were made on this particular question, six were found to have been a response to community demand rather than to professional demand.

The only other adaptation in which lay individuals have participated to a great extent is the adult leisure classes adaptation. The thirteen communities classified under lay inception are mostly those in which local economic and industrial circumstances have produced demand for trade courses which subsequently led to leisure work for adults, or communities in which unemployment conditions during the depression complemented the federal government's emergency program.

¹ Here again we must realize that these figures are for the whole history of diffusion of the adaptations. They should not be rated as representing the situation for first introductions in the State. For the most part, the course of diffusion is through a climate of favorable professional opinion. It may therefore be considered somewhat surprising that lay inception continues to play a large part in such adaptations as the kindergarten. Taking the first four of our sample communities to make the adaptation, we find the amount of lay participation slightly higher—11 out of 36 cases. This included all of the first four kindergarten communities, two of the first four special class communities, two of the first four adult leisure class communities, and one of the first four supplementary reading communities.

TABLE 39

Classification of Processes Involved in Introduction of Nine Adaptations in Forty-eight Communities in Terms of Lay and Professional Inception

ADAPTATION	NUMBER OF INTRODUCTIONS		
	Professional Inception	Lay Inception	Total
Kindergarten	1	6	7
Reorganized High School	13	0	13
Special Classes	10	2	12
Homemaking for Boys	12	0	12
Adult Leisure Classes	11	13	24
Extra-Curricular Activities	28	5	33
Elementary Final Examinations	22	1	23
Integrated Curricula	4	0	4
Supplementary Reading	18	2	20
All Introductions	119	29	148

Occasionally community influences were found to stimulate functionalizing the high school extracurricular program. Five communities introducing vitalized extracurricular activities were classed under lay inception. For the most part, however, changes in this area have in the past been precipitated by teachers and administrators.

Whether or not this lack of lay participation is to be commended seems to depend to a certain extent upon the function community interest and community activity might serve in the development of the school program. In view of the fact that community life in general has been found highly related to the adaptability of schools, it appears logical to infer that greater participation on the part of lay members of the community might be proposed if only for the purpose of "educating the public" to circumvent retarding influences of community attitude which have been given so much weight by professional people among the factors retarding the adaptation process. Indeed, the degree to which the public is reached through concerted efforts on the part of professional people is itself a significant correlative of the adaptability of schools. The implications here would be toward a type of educational

leadership which will operate not as its own initiating agency, but by stimulating activity of all the human resources of the community which may advantageously contribute to the progress of educational service. This point becomes clearer as one examines a number of measures descriptive of school-community relationships.²

Community Groups

Additional information on the direct contribution of community life to the introduction of changes in the school program is to be had from a study of influences of social groups in the community rather than of individuals singly or as a whole. In Table 40 is presented a tabulation of community groups as they operate upon the introduction of the nine specific adaptations. In this table both the communities which have made the change and those which have not are classified according to whether groups were found within them favoring or opposing the change.

TABLE 40

Classification of Influences of Local Non-Professional Groups on Nine Adaptations in Forty-eight Communities

ADAPTATION	NUMBER OF COMMUNITIES IN WHICH LOCAL GROUPS HAVE BEEN INFLUENTIAL			
	Communities with Adaptation		Communities without Adaptation	
	Groups Favoring	Groups Opposing	Groups Favoring	Groups Opposing
Kindergarten	10	5	14	9
Reorganized High School	9	9	1	0
Special Classes	11	2	1	1
Homemaking for Boys	1	0	2	0
Adult Leisure Classes	16	6	5	1
Extracurricular Activities	13	1	2	0
Elementary Final Examinations	5	0	0	0
Integrated Curricula	1	1	3	1
Supplementary Reading	4	0	0	1
All Adaptations	70	24	28	13

² See *supra*, Chapter IV.

With reference to the kindergarten, for example, we found that among the communities which had kindergartens there were ten in which local groups favored the introduction and five in which local groups opposed the kindergarten. Among the communities without kindergartens, fourteen were found in which groups favored this adaptation even though it did not exist in the community. Nine communities without kindergartens showed evidence of having local groups definitely opposed to them for one reason or another.

It is of interest that the prevalence of favoring groups supports the assumption that within individual communities there exist organizations of potential value as agents of non-professional life, which may operate in a cooperative program of betterment of community educational facilities.

Participation of Individual Parents and Citizens

Although it might be said, as demonstrated above, that on the average more organized sentiment by social groups will be found supporting advancement of the educational program than opposing it, parents and citizens themselves are most frequently found to possess a neutral role in actual adaptations, if not a role of complete ignorance of the adaptation and the process of its introduction. This is shown in tabular form in Table 41 and graphically in Figure 23, in which the nature of participation of parents and other citizens has been tabulated for the several school systems surveyed. In communities which have made changes, communities which, by the way, are more adaptable than others as a whole, casual leadership and support were encountered in establishing kindergartens, adult leisure classes, and extensive reading in the elementary school. At least followership is attained in some communities on the remaining adaptations of our list, with the exception of the newest—integrated curricula—with which there has been little experience in the state of Pennsylvania. In general, level of parent participation is found to be lower in communities without adaptations than in those with them. In communities without, a great majority of ratings of the role of parents and citizens were found to be on the very unproductive level of "ignorance."

It is the opinion of the writers that this condition is one that can

TABLE 41

Nature of Parent and Citizen Participation in Development of Nine Specific Adaptations

ROLE OF PARENTS AND CITIZENS	KINDERGARTEN	REORGANIZED HIGH SCHOOL	SPECIAL CLASSES	HOMEMAKING FOR BOYS	ADULT LEISURE CLASSES	EXTRACURRICULAR ACTIVITIES	ELEMENTARY FINAL EXAMINATIONS	INTEGRATED CURRICULA	SUPPLEMENTARY READING	To- TAL
Communities with adaptation:										
Leadership	7	—	—	—	5	—	—	—	1	13
Support	2	2	—	—	2	1	1	—	2	10
Followership . . .	2	4	7	1	4	4	5	—	3	30
Neutrality	2	10	11	1	9	7	7	—	8	55
Ignorance	2	11	4	11	2	17	7	2	8	64
Divided interest .	—	1	4	—	2	—	2	2	—	11
Opposition	—	—	2	—	—	1	—	—	—	3
Total	15	28	28	13	24	30	22	4	22	186
Communities with- out adaptation:										
Leadership	3	—	—	—	—	—	—	—	—	3
Support	3	2	1	—	1	1	—	—	—	8
Followership . . .	3	1	—	—	2	1	—	—	—	7
Neutrality	14	4	5	—	6	2	2	2	3	38
Ignorance	5	12	12	34	15	14	24	42	27	185
Divided interest .	4	1	2	—	—	—	—	—	—	7
Opposition	—	—	—	1	—	—	—	—	—	1
Total	32	20	20	35	24	18	26	44	30	249
Grand Total	47	48	48	48	48	48	48	48	52	435

Note: The entries indicate the number of communities.

be charged to the professional leaders themselves. Evidences in this study show the importance of community support to educational adaptability. If the lack of interest, inertia, and lethargy to which school people frequently refer is a matter of ignorance on the part of the layman regarding policies and practices of the local school system, then certainly responsibility should rest with the professional group for bridging the gap.

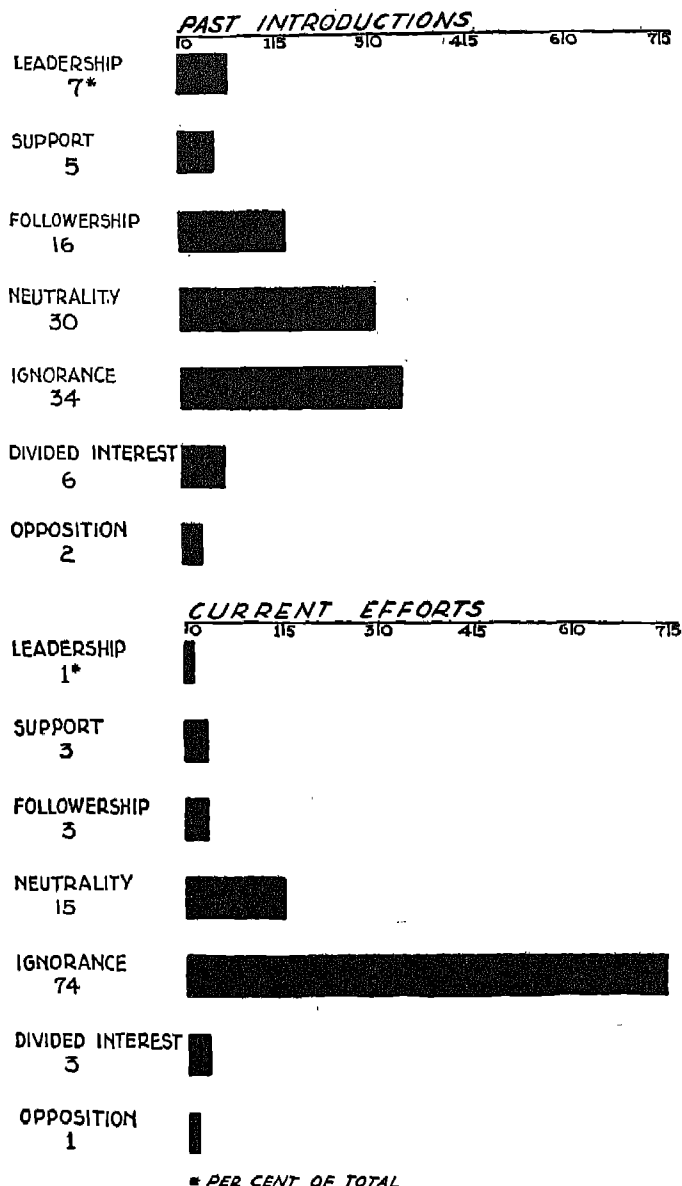


Figure 23. Nature of the Participation of the LAY PUBLIC in the Diffusion of Nine Adaptations

A Public Relations Index

The importance of professional leadership in "informing the public" is suggested in an analysis of a measure of school-community relationships resulting from a questionnaire to parents and citizens. The question was asked, "How or through what means do you learn what the schools are doing?" There were various types of replies. A frequent answer from parents suggested that their common source of information was their own children. In some cases this was obtained by way of report cards. In other cases information was obtained through discussions with other parents or through contacts with various children in the community. Such means of parent information about schools exist in all communities. They do not represent active leadership on the part of professional workers or the school system itself in informing the public.

In schools in which there is a conscious effort to keep the public in touch with what is going on, there is a greater frequency of parent replies that their sources of information about schools are newspaper accounts, the P. T. A., school activities, educational exhibits, school functions, debates, radio programs, projects, etc., which reach into the community. The proportion of the means of parent and citizen information sources of the latter type was taken for each community as a public relations index. This index was found to have a significant correlation with adaptability of schools ($r = .395$). Even among communities comparable in size and tax leeway, the index was markedly related to adaptability ($r = .252$).

It is a commonplace that few parents have a comprehensive picture of the methods and objectives of the schools as they are, let alone schools as educators agree they should be. In a highly industrialized town many parents were reported to look on the schools mainly as a place where the boys learn to become apprentices in the machine shops and the girls learn how to become housewives. In residential suburbs there is a very different picture, which is much more comprehensive but still stresses the college preparatory function. Whatever the stereotype, if it is narrow and specific, it is likely to lead quickly to the application of the "fads and frills" label to new developments.

The Importance of Public Support

In some communities, especially the residential suburbs, there was found intense interest in parent-teacher activities. Occasionally this activity vied in popularity with the usual round of teas and bridge tournaments. In the communities in which parents were not merely living but making a living, there were fewer enthusiastic parent-teacher groups. In the coal towns, where most of the P. T. A.'s had been discontinued, everyday living seemed too close to the subsistence level to permit much attention to the "higher things of life." There were strikes and layoffs, and the contrast between life of a few years ago and life on relief. A surprising feature of several P. T. A.'s was the fact that they did not come into being until their usefulness was emphasized by a dramatic need. A student strike and an epidemic brought two into existence.

We found that many of the activities in which local groups engage represent an overlap with responsibilities of the official local school organization. An illustration is the number of cases in which the supplementary reading adaptation was indirectly influenced by local P. T. A. and other groups who contributed library books through entertainments, social affairs, and what not. In one school system an arrangement was made whereby a local group of parents raised a hundred dollars and a similar amount was met by the board of education in order to buy library books. It would seem that the matter of supplying library books should be fully assumed and undertaken by public taxation. If this were a function and responsibility of publicly-supported education, then the energies of local patrons could be directed toward some of the newer and less fully accepted adaptations.

Public Opinion

The retarded development of programs of parent education and general adult education has been due no doubt to lack of understanding on the part of education of the importance of such programs to the progress of the entire local educational structure. This is supported by observations of the relation of certain measures of public opinion to the general adaptability of school systems.

A poll of public opinion was found to discriminate significantly among communities.³ A re-grouping of scores of parents and citizens on sentiment regarding a forward-looking educational policy was made in order to compare communities with the nine adaptations and those without them. The nine sets of comparisons appear in Table 42. From this table it appears that differences in the general level of public sentiment in favor of communities with kindergartens, reorganized high schools, special classes, homemaking for boys, and adult classes are highly significant. A statistically significant relationship may be noted between public attitude and whether or not a community has introduced some form of integrated curriculum. The poll of opinion was found to have a relationship with the presence or absence of the elementary final examination which was marked but not significant. Only with two of the adaptations, extracurricular activities and supplementary reading, was the relationship found to be not present or inconclusive.

TABLE 42

*Community Means of Parents' and Citizens' Scores on Poll of Opinion,
Communities With and Communities Without Nine Adaptations*

ADAPTATION	MEAN SCORE	
	Communities with Adaptation	Communities without Adaptation ^a
Kindergarten	64.17	61.76 (1)
Reorganized High School	63.58	61.21 (1)
Special Classes	63.55	61.34 (1)
Homemaking for Boys	63.75	62.26 (1)
Adult Classes	63.32	62.09 (1)
Extracurricular Activities	62.74	62.54 (4)
Elimination of Elementary Final Examinations	63.00	62.38 (3)
Integrated Curricula	64.00	62.54 (2)
Supplementary Reading	62.74	62.63 (4)

^a (1) *Highly significant difference.* (2) *Statistically significant difference.* (3) *Marked but not significant difference.* (4) *Inconclusive difference.* Cf. footnote Chapter III, pp. 57-58, and Supplement B, Note 17, p. 490.

³ See Supplement B, p. 490, for analysis of variance of community averages on the Poll of Public Opinion and Chapter XVI on the Climate of Opinion.

As was reported in Chapter XI, the opinion scores of teachers, although higher on the average, also were significantly related to whether or not communities have the first five mentioned specific adaptations. In the case of integrated curricula, however, slight differences appear in the general level of sentiment among teachers, whereas a significant relationship was observed in the case of parents and citizens.

This suggests the possibility that the relationship between adaptation and parent opinion operates in both directions. We find that in a newer type of adaptation, such as integrated curricula, the sentiment of teachers is not greatly different in places which have it and in places which do not have it. This might be explained in part by the fact that teachers have attitudes and ideals with reference to educational theory represented in our poll of public opinion which far exceed the types of things actually practiced in their school work. In communities which have introduced integrated curricula, one of the newest adaptations, we know that community influence played a small part in the introduction. According to the histories of introductions of this adaptation determined by field study, it could not have resulted directly from pressures of community public opinion. Yet we find a significant difference in general level of attitude in communities which have it. Since so many of the conceptions touched upon in the poll of opinion bear directly upon integrated curricula, and since communities which have made the changes are significantly higher in general adaptability, it appears reasonable to infer that a change in the program might have resulted in a change in public sentiment instead of the reverse.

We have little additional evidence to support the hypothesis that a good educational program will improve the community's opinion on educational matters more frequently than the sentiment of the community will produce the educational change. It seems very likely, however, that there has been a high degree of interaction between the two elements, community opinion and school program, the first being the cause later to become the effect, in communities which have gone farthest in adaptability. From the standpoint of implementation, it might well be that the progress of educational projects can be accelerated if the school program can lead out con-

servatively and gradually in modifying and raising the level of public opinion upon which it must seek its support. This does not involve the question of whether or not the school should or dare build a new order. It is simply a question of how to encourage the introduction of changes in an institution such as the public school which depends largely in this country upon the support of local public opinion.

There appear to be differences in the types of adaptations which are influenced by public opinion. This is brought out by contrasts in the present status of communities with reference to three specific adaptations. As is seen in Table 42, places with and without extra-curricular activities, the elimination of elementary final examinations, and supplementary reading differ only slightly in average level of public sentiment regarding education in general. Significant and positive differences, however, were observed in the general attitude of teachers in communities with and without these three adaptations. It appears these adaptations are the type which do not readily come to the attention of the public. It is possible that a favorable public opinion is not necessary for introducing certain changes, such as these, with marks of being largely professional problems. For these matters it might be important, instead, that teacher sentiment be on an acceptable level. But even here, as with parents and citizens, the attitude of a teacher might be high as a *result* of the innovation rather than as a contributing cause. Numerous instances illustrating this fact were encountered in field study. In one community, where a great many reforms in educational service had taken place over a period of years and where abandonment of these reforms was threatened, a decided change was apparent in the sentiment of teachers who now enthusiastically favored the new program where formerly they had resisted the many innovations of which it consists.

One need not take an extreme stand in order to make the interpretation that public opinion often resists good education because the people in the community have not had opportunity to know what a good educational program is like.

Relation of Public Opinion to Adaptability

Community average scores on the poll of public opinion, *What Should Our Schools Do?* were found to be highly related to adaptability. They were not found to be significantly associated with wealth groupings. There was a marked difference between the mean scores of parents and citizens in large and in small systems, but geographical differences were negligible. The most amazing thing about this question of attitude or public opinion is that as measured on our questionnaire the very significant correlation of .422⁴ may be completely accounted for by influences of size and financial resources of communities: when these are removed, the correlation disappears. In other words, the correlation of adaptability with mean public acceptance of the adaptability principle in communities of the same size and same wealth is but .0357. We interpret this result in the following way: Given a set of communities comparable in size and financial resources, the sentiment of the public will bear no relationship to the quality of the local school program when measured in terms of adaptability. Such relationship as one might find, therefore, between public sentiment toward an advancing educational program and adaptability of the school program is due chiefly to association with other factors.

Another possible explanation is that superior efforts of educational workers to inform the people in the communities studied do not result in an increase in the understanding of education as great as the increase from interplay of mind upon mind that comes from increase in size of a district. In other words, the significant relationship of adaptability to public opinion may be one of the important ways in which size differences affect adaptability. If this should prove to be true, it would suggest that small districts might gain some of the advantages accruing to large districts by better planned programs of education of the lay public.

On the other hand, a slightly different picture is drawn if, instead of the mean public opinion score, the measure used is the extent to which there are people in the community who are in the upper fourth of all laymen in the state in sentiment favoring public edu-

⁴ In terms of allowances for sampling this correlation is highly significant.

cation. We therefore determined the proportion of parents and citizens in our sample from each community which had scores on the poll of public opinion exceeding the third quartile point for the entire state.

In one community only 6 per cent of our sample of adult laymen were found to have scores exceeding 70, which was the third quartile point for 1,673 parents from all over the state. In another community half of the citizens exceeded a score of 70. This measure was found to be highly associated with financial resources and size. Moreover, it had a somewhat higher correlation with adaptability (.500).⁵ When the effects of variations in financial resources and size are removed, this relationship is reduced below a point of statistical significance, but not to zero, as in the case of the relationship between adaptability and *average* parent attitude. The correlation of adaptability with the percentage of citizens with attitudes exceeding the third quartile, when size and wealth are removed, is .219.

When the influence of proportion of persons in a community with high-level attitude is removed from the treatment of the variations in adaptability of communities, there are still unexplained and significant variations among tax leeway groupings and size classes.

Teacher Reports of Community Opposition

Instances of community opposition reported by teachers on the questionnaire were found to be illuminating in so far as they reflected the types of conflict which exist between the professional staff of a school system and the community. Interestingly enough, however, this measure was not found to have a marked relationship to adaptability. Also, the slight relationship found was not in the direction that would be expected. A greater proportion of the teachers reported opposition in communities which were highest in adaptability. One might expect that if conservatism or opposition on the part of citizens was to be related to adaptability, the more frequent the instances of opposition the more the schools would be held down and the less adaptable they would be. But apparently this is not the case. The poor schools do not adapt, they do not pro-

⁵ Highly significant.

pose new changes which call for opposition on the part of parents. Only the adapting schools undertake innovations which give lay groups an opportunity to have something to oppose. Only the active school program is the one to stick its neck out, so to speak. This is adequately illustrated by replies from two teachers in one of the least adapting communities in our study. In this community the teachers as a whole reported no opposition on the part of the community. One teacher replied, "No. The parents or community stand back of the teachers in our school system. In the nine years I have been here I have known of only one case of opposition in the whole system." One of her colleagues reported as follows: "None. There are no new policies."

The proportion of teachers reporting community opposition is not, however, related to the financial resources of the community or to its size. Teachers reported opposition in whatever type of community they happened to be serving.

There is another possible interpretation of the relationship of this measure to adaptability. It may be expected that where there are active and energetic citizens interested in the development of the school, all will not be harmonious. There will be more frequent instances of opposition experienced by the educational staff. The interaction of professional and lay forces of the type which will best produce adaptable schools will not be frictionless. Perhaps a great deal of opposition represents a very wholesome type of attitude for the community to take. If the democratic processes of educational control are to be retained, responsive activity on the part of the public certainly is to be desired.

It is further possible that teachers are inclined to over-emphasize the negative aspects of the influences of the community upon the school. In casual interviews throughout the country we have felt that the community opposition argument was an admission of weakness on the part of professional people in coping with many circumstances of public relations which must be met in a functioning school program day in and day out. As one examines the types of circumstances cited by teachers as revealing community opposition, one is impressed by the fact that some are valid but others are not. In a community which had, in fact, the most adaptable school

encountered, and also the highest mean score of parents and citizens on the poll of public sentiment,⁶ the following case of community opposition was cited by one teacher: "I have heard of some parents objecting to the progressive education experiment in our community because they feel that their children are *not*, in spite of the theories of the educators, learning the essentials through playing store, etc. There was further objection because of the lack of discipline. How general these objections were I cannot say."

Another teacher in the same system, referring no doubt to the same type of community reaction, stated, "We have constant opposition to progressive education." Still another replied: "Parents complain that children don't seem to know the essentials of arithmetic. This has not occurred in my own room, but it was told me by a mother. Another parent seemed to think that the 'activity' period was a disorganized 'playing around' period."

These statements are corroborated to some extent by an additional measure which was obtained by asking teachers to list obstacles to adaptation, without limiting them to obstacles involving the community itself. The obstacles which, along with financial and those dealing with personnel and local administration, fell in the category of elements of community life, were found to have no relationship whatsoever to adaptability. The community was listed in proportion as frequently in wealthy communities as in poorer ones, in large communities as frequently as in small ones, in adaptable communities as frequently as in less adaptable communities.

Community Support of Status Quo

As shown above, the poll of opinion averages are related to adaptability. But this relationship is attributable to other factors, economic resources and size. The poll of opinion averages are measures of whether or not people support an *idea*—newer educational objectives and educational change. The patterns of this idea may be based upon experiences of persons with the schools in their community, but the thing measured is what *should* be, not what *is*. Bearing this distinction in mind we turn to a rough measure of

⁶ The mean score of this community was 70, which corresponds with the third quartile for the entire state.

what people in a community think of the schools of that community as they now are.

This measure was obtained from questionnaires sent to a sampling of the public in each community. One question asked what the *advantages* of the community were. Answers included good working conditions, business, industry, special local economic resources and advantages, good place to live, and the like. Also among the replies were such statements as "its schools," "a good educational system," "one of the finest school systems in the state." The proportion of all persons replying who referred to the *schools* among the advantages of the community was studied as a measure of public regard for the schools—as they now are. This measure was not found to be associated significantly with financial resources, size, or community type. Furthermore, the relationship is higher within communities of similar type ($r = .533$).

Regardless of the direction in which one interprets the causal relationship involved above, this should be a very important consideration for those interested in implementing educational programs. If community enthusiasm brings about progress in education, then it is necessary to reach the public in any method of approach.

In summary, it must be pointed out that all indications point to the fact that public opinion and degree of community support bear a positive relation to adaptability. The indicators or measures of public support of education seem to be roughly of two types: first, that which is dependent upon certain inherent social and economic conditions of community life, and, second, that which is independently related to adaptability. The former tends to bear upon progress or acceptance of *what ought to be*; the latter upon what is. It would appear wiser, if this observation is sound, to guide public relations upon these principles:

1. In communities with community social and economic factors favoring adaptability⁷ it is safe and advisable to lead off with progressive⁸ public information.

2. In communities with local social and economic circumstances

⁷ See Part II, Chapters IV to VIII.

⁸ This term is used advisedly in the sense only of information which is concerned with next steps, change or *what ought to be*.

not conducive to adaptability, it is advisable to work from information regarding what has been accepted, the *status quo*.

3. In any case, the community, as a whole, likes to believe that it has good schools. The more the community manifests this belief, the better the schools, and vice versa.

We might conclude from this analysis that the important challenge to professional people is to capitalize the interest which the public takes in the school program, whether it appears to be a negative interest or not. It should be the responsibility of the educator to correct negative reactions of parents if they are based on invalid grounds. This must be done in terms of the *readiness* of the community to follow specific proposals or innovations.

A further point seems worthy of emphasis. The complaint of one or two individuals is commonly taken to represent the attitude of a larger group or the entire community. The professional staff of the school should not take a defensive position in meeting the community, but should operate on the level of true professional leadership and cooperation.

Pupil Participation

There is one participant who is more intimately affected by adaptations than any other—the pupil himself. One of the underlying principles of educational thought embodied in those qualities which adaptable schools possess is the principle of pupil activity and pupil initiative. But the average school, and the great majority of schools today, are so far from realizing the dictates of the most acceptable educational theory that it is not surprising the pupil in actual practice participates but little in the adaptation process.

Extracurricular activities is one area in which pupil interests have been permitted to fashion the nature of school work. In some communities the pupils have taken part in bringing about a functional extracurricular program. Closely related to this is the homemaking for boys adaptation, which in many schools began as an extracurricular activity and in most cases was found to be the result of the demand of the pupils themselves. Outside of this, the most common role of pupils is complete ignorance of an adaptation or its introduction. The role of pupils in communities surveyed with ref-

erence to the nine adaptations is summarized in tabular form in Table 43 and also in Figure 24.

TABLE 43

Nature of Pupil Participation in Development of Nine Specific Adaptations

ROLE OF PUPILS	KINDERGARTEN	REORGANIZED HIGH SCHOOL	SPECIAL CLASSES	HOMEMAKING FOR BOYS	ADULT LEISURE CLASSES	EXTRACURRICULAR ACTIVITIES	ELEMENTARY FINAL EXAMINATIONS	INTEGRATED CURRICULA	SUPPLEMENTARY READING	TO- TAL
Communities with adaptation:										
Leadership	—	—	—	7	—	2	—	—	—	9
Support	—	1	—	5	—	2	3	—	—	11
Followership . . .	1	—	—	—	—	8	1	1	1	12
Neutrality	—	1	3	—	7	10	5	3	7	36
Ignorance	15	26	24	1	16	8	13	—	10	113
Divided interest .	—	—	—	—	1	—	—	—	—	1
Opposition	—	—	1	—	—	—	—	—	—	1
Total	16	28	28	13	24	30	22	4	18	183
Communities with- out adaptation:										
Leadership	—	—	—	1	—	—	—	—	—	1
Support	—	—	—	—	—	—	—	—	—	—
Followership . . .	—	1	—	6	—	3	—	—	—	10
Neutrality	3	4	—	4	4	1	2	2	2	22
Ignorance	28	14	20	24	20	14	24	42	28	214
Divided interest .	—	1	—	—	—	—	—	—	—	1
Opposition	—	—	—	—	—	—	—	—	—	—
Total	31	20	20	35	24	18	26	44	30	248
Grand Total	47	48	48	48	48	48	48	48	48	431

Note: The entries indicate the number of communities.

The extent to which pupils are encouraged to voice their preferences, to suggest new things for the school to do, and the extent to which they take their own criticisms of the school seriously, are important factors for adaptability. Adaptability is not furthered by the complacent pupil who takes for granted curriculum and class pro-

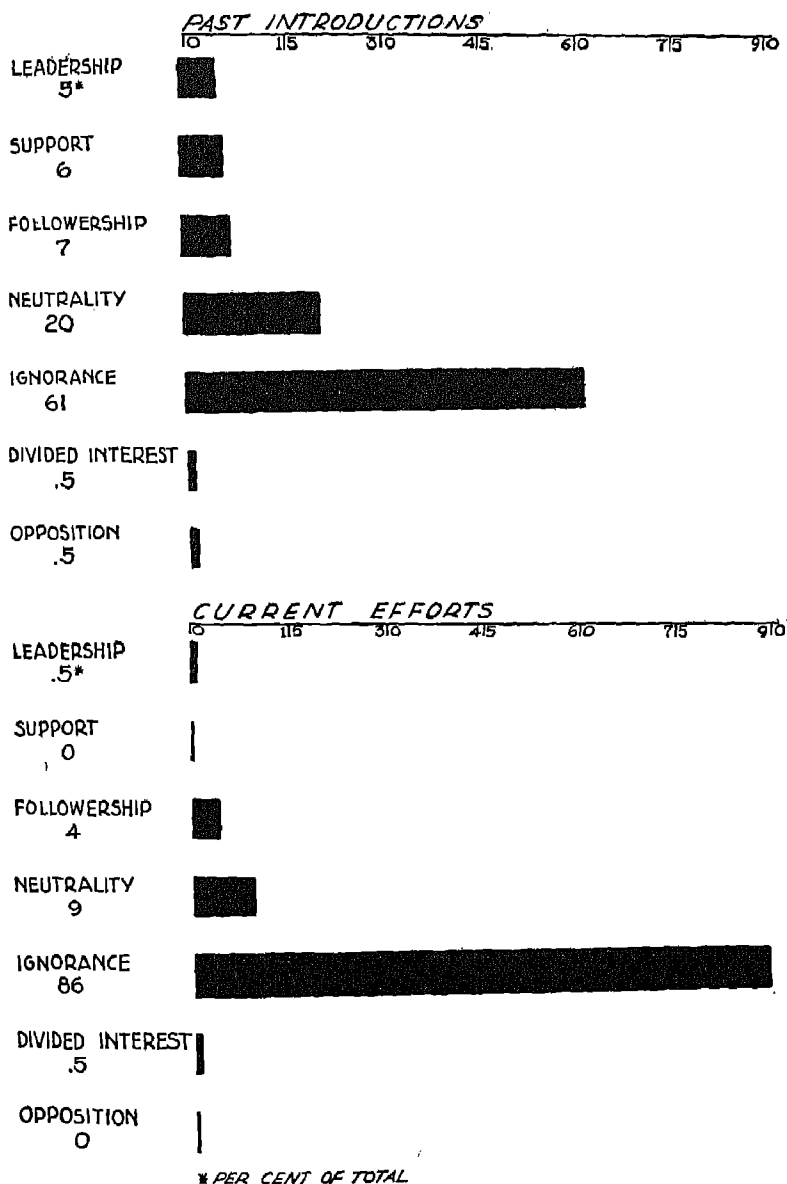


Figure 24. Nature of the Participation of PUPILS in the Diffusion of Nine Adaptations

cedures, nor by the reverent one who looks upon his teacher solely with awe and deference. Our sampling of communities revealed very few pupils who differed with the school procedures or had suggestions for changes.

The problems which an adolescent thinks are most important may not give much basis for fundamental suggestions. One girl suggested that the school should do something to help the boys "get around" a bit better and polish up their personalities. She obviously had in mind the round of social activities which seem so important to the adolescent. Most of the pupils, when approached on the question of what the school was doing for them, and whether it seemed to be leaving anything out, had nothing to suggest. One said that he "let the school authorities decide what was best to teach in the schools."

Some of the factors bearing on adaptability work through the pupils. They have interests, beliefs, expectations, and emotional conditioning, which at times may take form as a specific request. This possibility is exemplified in the home economics for boys adaptation. Mechanical drawing for girls is another interesting example of an adaptation to a need apparently first recognized by a pupil in one community. A girl taking a course in nursing asked for a special course in charting; she felt she needed skill in drawing with precision the various charts which are a nurse's responsibility. The adaptation which she suggested—a special course—was deemed too specialized for a small school system, but the mechanical drawing course for boys was for the first time opened to girls. At present eight girls—all taking nursing—are in the mechanical drawing course.

A second type of pupil activity is much less constructive. It consists of active and sometimes violent rebellion. Frequently the issue is relatively trivial: the time or length of the lunch hour, abolishing of a dance, homework over the weekend, the price of lunches, the type of assembly programs, the hour of closing the gymnasium. The triviality of the occasion and the violence of the outburst—breaking of windows in some instances—lead one to suspect that the participants are not aware of what is really irking them and that they select a convenient target or scapegoat. Sometimes significant adap-

tations result from these sporadic outbreaks. When the pupils booed the assembly programs, the principal decided to turn assemblies entirely over to them, and they have now utilized this opportunity in interesting ways to develop talent and to generate a feeling that they count in the running of the school. When a new gymnasium was closed early in the afternoon, and in consequence plastered with mud "bombs" by irate pupils, a superintendent was led to revise somewhat his view that a child's place in the late afternoon and evening was in the home, and gymnasiums were opened up for afternoon and evening recreation programs.

Such results are encouraging, but more often this violence distracts attention from significant changes, generates irrational hostilities between students and faculty, and in general is an occasion to heap on to some feature of the school a lot of piled up emotion accumulated by submission to authority and other frustrating experiences. A constructive outcome generally depends, as in the cases above, on someone's seeing beyond the immediate issue to some constructive change.

In reviewing the above, it appears that the part of parents and other citizens and of pupils is relatively minor. The instances of constructive leadership and followership reported here, however, suggest an important force which, when neglected, may become a negative force in the community. More attention is needed in making citizens and students aware of what education is about, and of the shortcomings of their own educational program as well as its strong features.

Evidently if local initiative is to function, if democratic local control of education is to survive, and if adaptability of our schools is to be served, some responsibility should be taken on the part of the professional leaders toward activating the interest of many vitally concerned potential participants.

Summary

1. Observations of the diffusion of the nine adaptations studied show that the professional group rather than the public, typically takes the initiative. Lay groups have played a dominant part, however, in the diffusion of kindergartens and an important part in the

diffusion of adult leisure classes. Lay initiative was responsible for the introduction into at least one community of six of the nine adaptations studied. The indications are that an informed public would be more active. This is supported by the finding that the more channels of information about schools other than the children, the more adaptable the community.

2. The predominance of groups favoring adaptations over those opposed suggests that most communities have undeveloped assets in their non-school group life.

3. The predominant role of parents has been that of neutrality and ignorance. This is particularly true with respect to the communities which adaptations have not yet reached. Most parents have a very inadequate notion of the schools as they are, let alone as they should be.

4. The scores of parents and other laymen on the "Poll of Opinion on What Our Schools Should Do" show that the communities that have made adaptations are more alert to educational needs than those that have not. This may be a cause of the adaptations made in the community, or a result. Probably it works both ways: educational advance improving public attitude and public attitude supporting further advance. From the standpoint of local leadership it is safe to assume that the latter is important.

5. The attitude of the public seems to be of less importance in adaptations that are markedly professional in nature. Markedly significant differences between adapting communities and non-adaptors appear in the poll in the case of kindergartens, the reorganized high school, special classes, homemaking for boys, and adult classes. Smaller differences were found for the other adaptations, the least being in the case of extracurricular activities and supplementary reading.

6. While the poll community averages are highly related to the general measure of adaptability, they are so associated with size and wealth measures that this relationship disappears when size and wealth are held constant. When the percentage of persons scoring high on the poll is used as the measure, however, the relationship does not disappear.

7. The degree of parent opposition reported by teachers showed

little relationship to adaptability. The small correlation that did appear was negative; that is, the more opposition reported, the better the school tended to be.

8. In communities rated high in adaptability there is a greater tendency for the public to consider the school a community asset. This relationship was strengthened when the effects of size and financial resources were removed.

9. The part pupils have played in the adaptation process is almost negligible. They have had some influence in the development of homemaking for boys and extracurricular activities. Otherwise they are typically ignorant of educational needs.

10. It would appear that if local initiative is to function under modern conditions more responsibility should be assumed by professional leaders toward activating the interests of the various potential participants—parents, public, pupils.

CHAPTER XIII

State Agencies and Diffusion

IN THE field work of this study the chief categories of influence considered were (1) all agencies involved in the purely local complex, both professional and non-professional; (2) the central government operating through the legislative and administrative agencies; and (3) all non-local organizations not direct agents of the state government. These are the three possible sources of influence on the local community for the production of changes in the school program. The first we may define as change precipitated by self-activity within the local unit, either within the limits of the school staff, or from influences in the community, or from an interaction of the two. Influences operating within the local unit have been discussed in previous chapters. The second group of agencies are discussed in Chapters XIV and XV. In this chapter we shall view the function of the state in the process of adaptation—the third group of agencies.

Methods of Participation of State Central Agencies

Methods of defining the influences of the state upon individual school districts which constitute the subdivisions within which the actual processes of education in the state school system take place, have been treated in some detail in an earlier monograph by the present authors.¹ Five important degrees of control, defining relationship of the state to the local unit, were presented in this earlier report. They are reproduced here as follows:²

(1) *State assumption*

This term is applied to that situation in which the state is to administer the function directly. Examples would include state-operated accounting systems, such as that in Delaware, state-operated transportation systems, such as that in North Carolina, and a system of state mental clinics, such as that now operated in Massachusetts.

¹ Mort, Paul R. and Cornell, Francis G. *Adaptability of Public School Systems*, pp. 103-112.

² *Ibid.*, pp. 110-111.

(2) *State mandate*

This term is applied to the situation in which the state institutes adaptation by law or administrative fiat. An example would be the state requirement for the minimum amount of time for physical education in the State of New Jersey, and the state requirement, characteristic of all the states, that the evil effects of alcoholic liquors be taught.

(3) *State stimulation*

In America we have many examples of state leadership in making adaptations. States have promoted adaptation by grants in aid and by dynamic leadership. In this type of relationship, however, the responsibility for determining whether or not the adaptation shall be made is left to the locality.

(4) *State cooperation*

This term is applied to the situation in which the driving interest is local but in which the state officers cooperate with the local authorities by providing information and advice. The locality determines the nature of the adaptation and takes the responsibility for making it. The state, however, takes an active and favorable interest in the process. A great deal of the information disseminated by the state departments of education is for the purpose of assisting localities that are struggling with various problems of adaptation.

(5) *Laissez faire*

There are areas in every system centrally or locally controlled where the state takes no part whatever in bringing about the adaptation and no interest in or responsibility for making the adaptation.

This scale of the degree of state participation was used in our field study of the nine adaptations selected for special observation.

The State Department of Education and the Nine Adaptations

Through interviews and documentary study an attempt was made to classify the introduction of the nine adaptations in terms of the above five categories. In communities which had not made the adaptation, the relationship was defined in terms of influences, if any, favoring the production of the change even though it had not

been made. A tabulation of the results of these classifications of relationship between state and local units was then made for places which had adapted and for places which had not adapted. The frequencies with which the nine adaptations were classified in terms of the various state-local relationships appear in Table 44. Since none of the nine adaptations fell under the headings "state assumption" and "state mandate," only three categories are shown. Figure 25 illustrates the data of columns S, C, and L of this table.

TABLE 44

Distribution of State-Local Relationship Classifications for the Nine Adaptations in Pennsylvania Communities as of 1937-1938

ADAPTATION	COMMUNITIES WITH ADAPTATION				COMMUNITIES WITHOUT ADAPTATION				TOTAL
	S ^a	C	L	T	S	C	L	T	
Kindergarten	4	11	1	16	8	11	14	33	49
Reorganized High Schools	22	6	—	28	11	5	3	19	47
Special Classes	21	5	1	27	8	—	11	19	46
Homemaking for Boys	1	2	10	13	3	2	29	34	47
Adult Leisure Classes	20	1	—	21	10	4	8	22	43
Extracurricular Ac- tivities	8	20	2	30	6	6	5	17	47
Elementary Final Ex- aminations	—	12	8	20	1	9	14	24	44
Integrated Curricula	2	2	—	4	2	20	22	44	48
Supplementary Read- ing	2	4	12	18	2	1	27	30	48
All Adaptations . .	80	63	34	177	51	58	133	242	419

^a S = Stimulation. C = Cooperation. L = Laissez-faire. T = Total.

From Table 44 the long history of local autonomy in the development of public education in the state of Pennsylvania becomes even more apparent than an examination of the legal and the administrative history of education in that state would show. Needless to say, the strongest type of influence utilized by the state government is in the area of stimulation, and only in the case of special classes did this include special state financial aid. In more than half of

the cases of adaptation (97 out of 177) the locality has taken the lead. In little more than a fifth of the non-adaptors has state stimulation appeared (51 out of 242). In the first case, the provision of adult education had been taken over almost entirely without the participation of the local school district by the state government and Federal Government as a part of the federal emergency program. In another case, changes having to do with the elimination of final

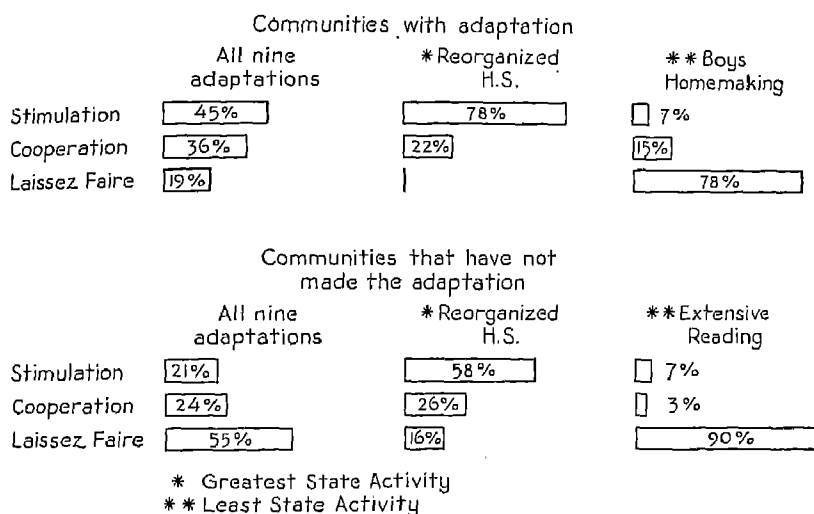


Figure 25. Relation of the State Department of Education to the Diffusion of Nine Adaptations

examinations and changes in promotion policy had been produced, not through the initiative of the local unit, or through its direct participation in the process, but through the initiation of the county superintendents, operating as a secondary arm of state educational administration. The latter took place in a fourth-class district which, in Pennsylvania, is subjected to much greater external control through the county organization than are other classes of districts. Aside from such occasional examples, which may be disregarded as special cases, the state has exerted but moderate influences in the diffusion of the nine adaptations which we have studied.⁸

⁸ This treatment of the county superintendent as a state agent is an exception. Throughout the study he has been considered the local superintendent of the fourth-class districts.

Of the nine adaptations which we have studied in detail, the re-organized high school, special classes, and adult leisure classes are three with which the state has had greatest influence, particularly in those communities which have now made the change. A less noticeable degree of influence is observed in the kindergarten and extracurricular activities. Least direct influence was found in connection with homemaking for boys and supplementary reading in communities now having this change. It is interesting to note that there appears to be a differential treatment of districts by the state administrative unit. State laws are commonly framed in such language as to vary their application in different districts. But even when the legal machinery is uniform, the actual relationship between the state unit and the local unit is found to vary considerably. We see that in the majority of communities not having kindergartens, for example, the relation of the state is of the laissez-faire variety. Among the group with kindergartens, in only one had the state not in some way participated in its introduction. This happened to be the earliest kindergarten noted in our field work, and one which had been introduced before the state had significantly come into the picture. The same is true in varying degrees for each of the nine adaptations.

In some superintendents' offices we find an extensive array of state bulletins and documents which have been given intensive consideration by local authorities. In other communities the administrative head and the teachers appear to pay little attention to literature from the State Education Department unless it is of the inspectorial variety, involving standards which must be met or other requirements to be treated in reports to the county office or to the state office.

Referring again to Table 44, we find that 133 of 242 ratings in communities not having the particular adaptation were of the variety representing for the communities involved no direct interest or activities on the part of the State Education Department. Only 34 out of 177 classifications of introductions actually made were classified in this category.

An illustration of the passive type of influence to come from the State Education Department bears upon integrated curricula.

In some schools which have given thought to the idea, superintendents appear to be aware that a change in policy has taken place with reference to state control of graduation requirements. In a recent bulletin of the State Department it is indicated that aside from certain minima, courses are no longer prescribed in detail and graduation is based on Grades 10, 11 and 12 only, in line with the tendency for reorganization of high schools.

State Participation and Genuineness of Adaptations

In the field work carried on in the forty-eight communities, each of the nine adaptations made by a community was rated on a four-point scale as to genuineness. When we compare the nature of state participation with genuineness, we find only slight differences among the three categories of state participation—stimulation, cooperation, and laissez faire. Within these three categories, however, the adaptations stimulated by the state were rated as slightly more genuine than those in which the state only cooperated, and those in which the state cooperated as slightly more genuine than those in which it played a small part. When the results of all nine adaptations were assembled, no differences appeared at all.

The conclusions with respect to the superiority of stimulation over cooperation, and of cooperation over laissez faire were based upon inspection of the differences appearing in the individual adaptations. With respect to the kindergarten, stimulation was slightly favored over cooperation. Here cooperation was the chief role played by the state officers. In the case of high schools and special classes, where the chief role was stimulation, we again find stimulation more favorable to genuineness than cooperation. In the case of adult education, where stimulation was the most common role played by the state, no differences in genuineness appeared. In extracurricular activities and reorganized high schools, where the state's role was mainly cooperation with little or no stimulation, the communities with which the state had cooperated were rated higher in genuineness than those in which the state had been inactive. With respect to the elimination of final examinations, in which we have no record of state stimulation, cooperation is favored over laissez faire. In the small number of cases of integrated curricula,

where the role of the state was mainly cooperation, no distinctions were found. In the case of supplementary reading, where the state participated but slightly, cooperation is favored over *laissez faire*.

This evidently indicates the importance of a moderate policy of action on the part of the state. Although a dominant position is not to be desired on other grounds, it appears that in local affairs a positive state activity on a cooperative or stimulative level is preferable to a policy of "hands off."

Local Variations in State Influence

Among the first interpretations that came to our attention as this analysis proceeded was the differential treatment received by districts. The student of educational law is inclined to describe the control of the state over an educational project in terms of a particular statute enacted in a particular year. It has been our observation that the law does not define the working relationship between the central government and the local unit. This is so in part because there is such great variance between what is demanded by law and what actually transpires in practice. In addition, however, with the development of state departments of education, and with the increase in the complexity and intangibility of many aspects of public education, central governments have exercised influences on local units by means of administrative and indirect devices in addition to the direct and legal. Furthermore, influences reaching one type of district do not obtain in the other. This is partly explained by the fact that all three types of relationships have been observed as operating to produce change in the school program: (1) the exclusively local; (2) the state-local; (3) the non-official-local.

There are noticeable differences among communities in the extent of state influence on the same adaptation. Even though the state government has been very active in stimulating reorganized high schools, one fifth of the school districts visited introduced the change on a cooperative basis. In these districts the precipitating influence was local, although the state participated in the process. Most kindergartens were introduced under conditions of cooperation between the State and the local unit, but in approximately

one-fourth of the cases state influence was observably stimulative in character.

It is of interest that for some adaptations these differences in state influence bear a relationship to the presence or absence of the change in question. As an illustration, compared with the period when most of the reorganized high schools were introduced, there is now much less state stimulation. The same may be said for the introduction of adult leisure classes. In the case of homemaking for boys a large proportion of schools introducing this change did so on a laissez-faire basis involving only the remotest stimulation or cooperation from the State Department of Public Instruction. By contrast, even a greater proportion of communities not having made this change were receiving no type of influence whatsoever from the state unit.

For each of the nine adaptations, communities have introduced change under state stimulation, under state cooperation, and under laissez faire. Communities which have not made the adaptation are also influenced by the state in each of these three ways. This suggests an additional conclusion. The state has not been inactive, although in some cases its influence bears only indirectly upon some of its local units. It may be said that at some time or another, for at least a fraction of its local districts, the state has shown some interest and has promoted, directly or indirectly, each of the nine adaptations in question.

Changes in State-Local Relationships

What changes have taken place in the relationship of the State to the local unit as these nine projects have progressed through the four levels during the various periods discussed in the treatment of Figure 1 in Chapter II?

The degree of state responsibility varies with the nine adaptations. In the introduction of reorganized high schools the state has operated rather strongly on the basis of stimulative interest. The same may be said for adult classes, particularly because of the emergency program since the beginning of the depression. To a smaller degree the same is true of special classes for orthogenic backward. Four of the nine adaptations have operated predomi-

nantly on the cooperative level. In order of the degree of predominance of this type of relationship they are: (1) the kindergarten, (2) vitalizing of extracurricular activities, (3) elimination of elementary final examinations, and (4) integrated curricula in the high schools. The most common type of relationship involved in the introduction of homemaking for boys is in the *laissez-faire* category. This is true even in a more marked degree in the case of extensive reading in the elementary school.

We have just viewed the nine adaptations in terms of their rank order in extent of state influence from the time of first introduction to the present. They rank from considerable state influence, in the case of reorganization of high schools, to very little state influence, in the case of elementary extensive reading.

The predominating state influence characteristic of each of the nine adaptations is related neither to the rates of growth of these adaptations in the past, nor to present level of maturity. It seems clear, therefore, that whether or not the state has participated greatly in diffusion has little bearing on how fast the movement has taken place or how far diffusion has been attained. The state has exercised least influence upon adaptation in the area of supplementary reading, but this adaptation has diffused more than any of the other eight, and ranks fourth in past rate of development. On the other hand, adult education, with which the state has assumed a degree of influence which we have classified second in rank, has had slow growth in the past and ranks only seventh in the level of maturity attained.

There are two characteristics which the nine adaptations have in common. The earliest experimentation and introduction for each was made exclusively on a *laissez-faire* basis, and adaptation was found to be more frequent in large and wealthier school districts and communities with certain active economic or cultural advantages. In other words, the state has come into the picture late in the history of the growth of adaptations, and development, left largely to the initiative of local units, has of necessity taken place in those districts in which circumstances have operated favorably.

A tabular statement was prepared to show the way in which the state has come into the picture with reference to each of the nine

adaptations. For the four adaptations ranking highest in degree of state influence, the present relationship of the state may be defined as direct and legal.

In the case of the kindergarten, Pennsylvania had a permissive law as early as 1897.⁴ By that time kindergarten diffusion had already proceeded to the level of early experimentation shown in Figure 1. It was not until the 20's that the kindergarten was recognized administratively, although it had been referred to in the statutes at an early date. In 1926 the State Department organized a division of kindergarten in elementary education. By 1931 the kindergarten had diffused very largely without the stimulus of the State, and had emerged from the experimental period. But only during this period did the Legislature define the kindergarten as a part of the school system. Since specific controls are defined in the law regarding the kindergarten, and since the kindergarten itself is actually defined in the law, we may say that the influence of the State has been direct and legal although, even in recent years, it has been for the most part a relationship representing no stronger influence than cooperation.

The reorganization of high schools is also characteristically direct and legal. Clear evidence of state activity in this adaptation did not appear until 1921. At that time the reorganization of high schools had already reached the second level of diffusion, but in 1921 a state law recognized the six-year high school and the junior high school when approved by the State Department of Public Instruction and staffed with properly qualified teachers. In the same year the position of Director of Junior High Schools was created in the state office. The State's assumption of responsibility for the diffusion of this adaptation took place in coincidence with the period of its most rapid diffusion. It was during the 20's that the reorganized high school movement reached both the third and the fourth levels of diffusion, emerging from experimentation to early introduction into the period of common diffusion.

Adult leisure classes are also influenced on a direct and legal basis by the State. In the earlier periods of the development of

⁴ This and other points in this section are reviewed in Chapter II, *supra*, p. 26. In these pages the reader will find it convenient to refer to Figure 1, p. 32.

this innovation, however, the relationship, though legal, was somewhat indirect since the earliest laws clearly indicated a primary interest in formal adult education. Permissive legislation with respect to adult classes appeared in the code of 1911. The diffusion was at this time appearing in the second level. In the next decade "extension education," which included leisure activities for adults, was legally defined, although the Edmonds Act providing financial aid to districts did not give it special recognition. As the diffusion progressed from the second to the third level, the relationship involved the State and Federal Government in the form of the emergency program. It was direct and legal at that time.

Special education, too, has had a history of direct and specific interest on the part of the State when this adaptation, through local initiative, was still in the experimental stage.⁵ The 1911 code permitted districts to provide outside education for children who were mentally handicapped. Only as this adaptation reached the third level did the state law provide for district classes for mentally handicapped children on a permissive basis. The law also during the 20's provided for special aid on a percentage grant basis to districts organizing special classes. In 1920 the Bureau of Special Education was organized. The state influence on the special class adaptation has been in large part stimulative since the early 20's because of the financial aid inducement to local districts.

We have now discussed, in terms of state influence, the four adaptations which may be said to have been advanced by the State on a direct and specific basis. It must be noted that each of these adaptations involves the definition of the scope of public education in general or the classification of the particular units of organization of the state school system. In either case it was considered necessary for the legislature to pass permissive laws in accordance with its responsibility for defining the scope of public education to be supported by means of public taxation. It should be emphasized, however, that the permissive legislation always came some time after the first introduction. This has been possible primarily because these adaptations are very concrete and objective. The remaining projects are not as readily definable, and where definition

⁵ Less than 3 per cent diffused.

is possible it would to a great extent conflict with the traditional policy of the legislature to delegate to the local unit, for the most part, responsibility for details of the curriculum and instruction.

The state control of extracurricular activities is indirect. It emerged to full force in the 20's through the state supervisory program and by means of the leverage of state standards for the classification of secondary schools. The adaptation had already reached the second or third level of diffusion by the time state officers had become actively interested.

The question of elementary examinations, so far as state influence is concerned, is also indirect and administrative. The State Department approves reports on marking systems required of local districts, and through the organization of conferences and, to a remote extent, through its state teachers colleges, exerts secondary influence, producing changes in promotion policy and a spirit of pupil individuation in elementary instruction.

Some legal influence may be observed from an examination of the statutes bearing upon supplementary reading. The textbook has always been a part of education; hence it is not surprising that early laws considered the necessity that children be provided with books. At the time, however, textbooks and not supplementary or library books were clearly the purpose in mind. Through legislation with reference to school libraries the State has exerted an indirect influence in providing opportunities for children to have a variety of reading materials. In 1895 local boards were permitted to spend money for school libraries. Usually a state permissive law is a symptom of widespread approval of the adaptation concerned, but in this case the school library is not the particular adaptation in mind. Observations in the field show that many schools have libraries either used exclusively by high school children or used in a very formal way as adjuncts to the narrow textbook type of instruction. This early law may therefore be considered to have had indirect influence.

By the time the supplementary reading adaptation had reached the third level, in 1923, the state library was placed under the Department of Public Instruction. In 1921 the State had launched a school library campaign which indirectly influenced this movement.

With regard to the integrated curriculum, perhaps the newest adaptation, the State has only recently undertaken administrative measures directed toward state-wide curriculum construction which might produce changes in this direction. The homemaking for boys adaptation is also quite new and has been fostered administratively and indirectly through the Bureau of Instruction of the Home Economics Division in the State Department. In 1935 a bulletin tacitly approving home economics for boys devoted several hundred words to the discussion of this movement in the State.

From the foregoing it may be seen that the State has not served as an initiating agency in the early stages of adaptation. For most of the adaptations concerned, the State has operated to produce increased diffusion from the level of early introduction to higher levels. The State operates for the most part as an implementing or diffusing agency after innovations have developed to the point of having had quite a history of growth. In some form or other, forces operating outside the local unit and outside the state unit have produced initial phases of the change.

The public school system, state or local, has not historically, been an experimental organization. The leisure needs of adults have been cared for by commercialized entertainment or by religious and social groups not related to the public school system. Special education for mentally handicapped children began through private philanthropy. The kindergarten began through private interest and was developed first as an entirely separate system of education on a private basis. Other adaptations, such as extracurricular activities, elementary examinations, integrated curricula, and supplementary reading, involving the development of the activity program or the "experience curriculum," have historically received initial experimentation through the leadership of private schools, privately endowed colleges and universities, and other agencies not related to the official educational system, state or local. For all of our nine adaptations, however, local units began taking on adjustments to meet needs not previously met by schools and adapting materials experimentally produced elsewhere through a process of local stimulation not involving the State. In each case the local unit made the change before the State had organized to facilitate spread.

There is danger in generalizing from some of these observations because of recent changes in the function of the State with respect to the local unit. In the more recent adaptations, the integrated curriculum and homemaking for boys, for example, there appears to be considerably more leadership within the state organization than existed in an earlier day when the other adaptations appeared only in initial phases. It has been only within the past few years that state education departments have been organized in a way which would make leadership possible. Indeed, the state-local relationship in most areas of educational service is now on a distinctly inspectorial basis. Nevertheless, those in executive and administrative positions in the State Department in Pennsylvania in recent years represent far greater professional leadership and idealism than existed a quarter of a century ago. In other words, the trend is in the direction of the State becoming aware of and assisting in adaptations at an earlier period in their history.⁶

The fact remains, however, that state leadership in all of these nine adaptations awaited to a great extent the leadership of local communities within the State before a central program was formulated. Further action might therefore very well be framed in terms of the possibility of shunting the process of operation from outside non-official agencies through the local unit to the State so that the latter might become a disseminator of unique ideas, originating wherever they may.

Statements of Local Administrators with Reference to Dealings with State Department and Other Agencies

Direct statements from school authorities interviewed in twenty-nine communities give a picture of the relationship between local administration and the State Department, as seen from the local point of view. They appear in Table 45. These statements are transcriptions of notes on interviews in which the question was asked, "Just how does the State control or influence your local educational program?" They are grouped according to class of district, but no outstanding differences appear among the groups.

⁶ Cf. Chapter V of the Report of The Regents Inquiry, *Education for American Life*. New York: McGraw-Hill Book Co., 1938.

TABLE 45

Statements of Local Officials with Respect to State Department Influence on the Local Program

Third Class Districts—Cities and Villages

Community 1. We have visits from state representatives very infrequently. Of course, you realize that as the Superintendent of Schools I am commissioned by the state and am the state agent.

Community 2. We very rarely have anyone come in.

Community 3. They don't bother us much.

Community 4. Our vocational curriculum must be approved. Field men come out occasionally to work with us in an advisory capacity.

Community 5. We receive most influence from the state in connection with state aid. You see, we receive distressed district aid. Then, of course, the secondary school advisers we must deal with, although they don't get around often enough to have much influence on what we do.

Community 6. Oh, we don't have much to do with the state except in a legal way through certification, but this doesn't amount to much because there is no influence of this in the selection of teachers. It has been my experience that well-managed schools in this state are left alone pretty much.

Community 7. The State Department is permitted to withhold aid if a school district does not submit reports. That's about the only way they have control over us. A few years ago we had an old school building condemned by the state, but that was a pretty good thing.

Community 8. The State Department is satisfied if we fill in forms. We are remote from Harrisburg.

Community 9. Well, the dealings with the State Department vary, although there is a tendency toward the dictatorial.

Community 10. Whenever there is extensive repair on buildings we must get an O.K. from Harrisburg. Then, too, we are influenced by the state course of study and our teachers are controlled by the state certificates.

Community 11. We follow the state course of study and we have standards for graduation in the high school, and we have regulations of attendance and certification of teachers. Our school board here follows salary minima required by law.

Community 12. We get suggestions in the way of printed material which we receive from the state and then, of course, there is supervision by request.

TABLE 45
(Continued)

Community 13. We pay no attention to the State Department here. Their control is negligible.

Community 14. They control our work by certification of teachers, they control the school program, the schedule of classes, by requiring forty-minute periods, and so forth, on which they give us a high school rating. Transportation is supervised in order to get the state appropriation.

Community 15. Our course of study is regulated to a certain extent by the state. We use forms and so forth on a cooperative basis, although the community here tends to look to the state for leadership.

Community 16. The state does influence us in a legal way, but I cannot say that we are conscious of pressure from the central government.

Community 17. We are required to submit evidence that certain matters having to do with attendance and health are in good shape if our high school is to be accredited. According to the law, our state appropriations depend on compliance with school law.

Third Class Districts—Townships

Community 18. We get our regulations from the county office. That is the way the state influence comes to us here. They check on our course of study and regulate teachers' salaries.

Community 19. We do not have very close control. The state specifies the course, sets up minimum requirements for graduation, and so on, but the influence is mostly through reports which we are required to make out.

Community 20. They dictate to us quite a bit. The average school board objects to control from Harrisburg.

Community 21. I follow these bulletins from the State Department, especially the ones which have to do with the high school program. (Supervising Principal.)

Community 22. State control is quite remote. The present administration operates on a suggestive basis. We have little bother from the state. We have had one inspector here in ten years.

Fourth Class Districts—Villages

Community 23. The influence of the state is increasingly dictatorial.

Community 24. There is no such thing as state supervision. There are few regulations to follow if you get state appropriations. The state inspector comes around whether you have it or not.

TABLE 45 (*Continued*)

Fourth Class Districts—Townships

Community 25. In this township there is no direct relationship to the state. The contacts which the local board of education had with county representatives were the only indications of state influence.

Community 26. We have an inspector once a year, a representative of the secondary division. Then, of course, we must make our reports each year.

Community 27. We have a great deal of control over our transportation in the rural districts; otherwise we have quite a bit of freedom.

Community 28. We have no more regulation from the state or county office even though we get more aid.

These statements seem to indicate less awareness of the State Department in the districts that operate under the county superintendents (all fourth-class districts and the third-class township districts which do not employ a superintendent). Most of them refer to personal inspection (8 references) and inspection through reports (5 references), and to the basic services of certification, mandatory minimum salary schedules, and state courses of study (6 references). Two references are to increased state discretionary control that accompanied the 1935 emergency aid law and three to printed suggestions.

The nature of the questions asked limited these statements to the relationships initiated by the State Department of Public Instruction. To balance this we have the reports of help received on request in the organization of the various services studied.

The State as a Source of Ideas for Teachers

Teachers do not seem particularly aware of direct State Department efforts at adaptation. The extent to which the State participates in diffusion, as far as the individual teachers see it, is suggested in their replies to the question, "Where did you get ideas for changes you have made or would like to make?" In tabulating the replies, the items which implied state influence indicated only indirect contact with the State. The following sources, of which there were substantial frequencies, are those in which state participation might be indirectly indicated:

College or university
Summer session
Convention, conference, institutes, and
other professional meetings
Special courses
Extension work
College or university professors

It appears that so far as the individual teacher is concerned, the State is truly operating in an indirect manner.

Pride in Local Control

On the whole there is intense pride in local freedom from central control in Pennsylvania. Though we found much criticism among laymen of real or imagined State Department regulations, the most frequent attitude was to take them for granted. This is illustrated by the following quotation:

We have not overlooked the fact that the Board has been hampered to a greater or lesser extent by acts of Assembly regulating the wages and salaries of teachers and other employees, and the rules of the State Department of Education. We fully realize that you have something to contend with that is different from what is found in the city government. (Reading *Eagle*, June 22, 1932.)

Reference to state mandate is frequently a stereotype for escaping local responsibility. Several board members expressed the view that "if you can tell people it's a state law that generally settles it." This may account for the exaggerated notions of state control reflected in public opinion in many states.

Influence of the Federal Government

Except for adult leisure classes no direct influence of federal agencies was noted. The fact that the vocational education program brought into the schools practices which challenge the adequacy of academic training doubtless had, however, a large indirect influence. Some of the adult leisure classes were stimulated through this channel rather than through the Works Progress Administration directly. On the whole, the indirect stimulus of the Smith-Hughes and George-Deen Acts seemed to give more genuine results in the communities visited.

State influence is frequently mentioned as an intermediary agency between the local unit and the Federal Government. In the homemaking for boys adaptation one conducive element was found to be the presence of vocational education. This was greatly influenced by the program made possible through the Smith-Hughes and George-Deen Acts. In one community in which there was an emergence of interest in homemaking for boys, the local secondary school program has been favored by a stage setting made possible by the Federal Government vocational shops. In another community (suburban) boys and girls were participating informally in many homemaking activities in connection with their 4H clubs which were an integral part of the vocational-agricultural work sponsored by the Federal Government.

Summary

1. During the whole period of diffusion the responsibility for making introductions is assumed almost altogether by the local school districts. The State Department of Public Instruction has stimulated local action in less than half of the cases, has cooperated in a somewhat smaller percentage, and has kept its hands off only in about a fifth of the cases. The Department is now or has been in the past engaged in stimulating further diffusion in about a fifth of the possible cases studied and is cooperating in attempts in an additional fourth. In the remainder of the cases no indications were found of present or past activity.

2. The State Department of Public Instruction is obviously selective in its stimulation. Its efforts have not reached all communities, and it shows greater interest in some adaptations than in others. This is indicated both by the evidence on the nine adaptations studied and by reports of superintendents with respect to present state-local relations. The reports show a dominance of the inspectorial type of relationship, which is little if at all related to adaptability.

3. Active interest by the state was not found in the early stages of diffusion.

CHAPTER XIV

The Role of Teacher-Training Institutions

IN VISITS to communities in the field, attempts were made to isolate the influence precipitating or bearing upon the introduction of specific adaptations which emanate from institutions on the college or university level. For the most part, the observed influence was exercised by way of professional training of teachers.

A summary tabulation of the number of communities in which some form of direct influence of a teachers college or university was observed appears in Table 46.

TABLE 46

Influence of Colleges and Universities on the Introduction of Nine Adaptations in Pennsylvania

ADAPTATION	COMMUNITIES WITH ADAPTATION		COMMUNITIES WITHOUT ADAPTATION	
	Number in Which Institutions Were an Influence	Total	Number in Which Institutions Were an Influence	Total
Kindergarten	2	16	2	32
Reorganized High School	8	28	2	20
Special Classes	6	28	5	20
Homemaking for Boys	1	13	3	35
Adult Education	5	24	3	24
Extracurricular Ac- tivities	12	30	2	18
Elementary Final Ex- aminations	15	22	3	26
Integrated Curricula	3	4	7	24
Supplementary Read- ing	12	18	6	30
All Adaptations . .	64		33	

Note: This table is read as follows: Institutions of higher education were influential in introducing kindergartens in 2 of the 16 communities having kindergartens and sought to promote kindergartens in 2 of the 32 that do not have them.

The first thing to be noted in this table is that the teacher-training institution or college is not a tremendous factor in any one single area. In fact, its contribution as a whole is much less than might be expected. A great many more communities now having a revised basis of promotion in the elementary schools had received encouragement or direct stimulation from a college or university than is true for the other adaptations. The most noticeable contrast is the very small proportion of cases in which the institution of higher learning was operating in places which had not yet made the adaptations. As with many types of influences operating upon the local unit, the college or university is a selective one. Perhaps this is due in part to the fact that only in the schools which are more adaptable because of other reasons are teachers able to take extension work and summer work which would permit the college or university readily to make a direct contact. A brief treatment of the nature of the direct influences of colleges and universities follows.

In some cases the university or college comes into the community and exerts a direct precipitating influence in the introduction of the work. Thus in two communities where a recent adult education program had been introduced, this work was found to be a part of the program of the Pennsylvania State College, which during the depression had set up an extension program resulting in the establishment of adult education centers in a number of Pennsylvania communities. In another case, work in special classes had been stimulated by a class in a near-by state teachers college which had asked permission to conduct a program of testing in the local school. After the testing had been done for the experience of students, the results were left with the superintendent with recommendations. Discussions of test results brought up the introduction of special classes. In two cases, communities located in college towns were found to be cooperating directly with the colleges in providing kindergarten opportunities.

Aside from these illustrations, the colleges themselves were not making direct efforts at improving local school programs. In many areas there was a high degree of cooperation between state colleges and local units. Thus we find special classes stimulated by psycho-

logical clinics of state teacher-training institutions. In one case a superintendent had studied with the present director of the division of special education who taught at the Pennsylvania State College during the summer session. In most other cases a particular course taken by a teacher, or more commonly by a principal or superintendent, either in residence or in extension or summer work, was the type of influence. This was true of extracurricular activities, a number of introductions of which were found to have been stimulated by graduate courses not only in universities in the state of Pennsylvania but elsewhere.

Many types of courses in elementary school instruction were found to have indirectly influenced changes in promotion policy. In one community an integrated curriculum program then in a state of emergence had been stimulated in no small part by the work of a near-by training school of a state teachers college. In other cases the influence was less direct, having been involved in a broader type of training of those professional participants who had Master's or Doctor's degrees. In one community a number of adaptations stimulated by the superintendent of schools might indirectly be attributed to training as a candidate for the Doctor's degree.

Pennsylvania is no doubt facing many of the problems of teacher education which are found in other states. No attempt has been made in our work to study the teacher-training problem, but a number of points have come to our attention which bear directly upon the question of adaptability and which seem pertinent to the present analysis. In the first place, it seems evident that in the area of teacher training the decentralized manner in which higher education has developed has resulted in more units within the state than could possibly be well equipped for the task. A tabulation of colleges and universities and teachers colleges with over 2,000 teachers in our sample shows that there were forty-eight such institutions within the state which had been attended by more than five teachers. Some were represented by a much larger number of teachers than others, but it is interesting to note that there were as many such training institutions represented in our study as communities. Twenty-five institutions had each trained at least 10 per cent of the teachers in at least one of our school systems.

Localism in the Training of Teachers

Although quality ratings were not available from the various institutions training teachers in the state, some communities appeared to be retarded in point of view because of a predominance of teachers from one or two institutions. The distribution of teachers in terms of institutions from which they received training was made in four large communities which were most adaptable and the four least adaptable large communities. The same was done for the four most adaptable and four least adaptable small communities. The results appear in Table 47.

TABLE 47
*Representation of Institutions Training Teachers in Selected
Pennsylvania Communities*

PER CENT OF TEACHERS IN DISTRICT TRAINED IN A GIVEN INSTITUTION	NUMBER OF INSTITUTIONS REPRESENTED			
	Large Communities		Small Communities	
	Four Most Adaptable	Four Least Adaptable	Four Most Adaptable	Four Least Adaptable
35.00 and over ..	—	—	—	1 ^b
30.00-34.99	—	1 ^a	1	—
25.00-29.99	2	1	1	1
20.00-24.99	2	4	4	3
15.00-19.99	1	4	1	3
10.00-14.99	3	1	—	3
5.00-9.99	4	5	6	7
Less than 5.00 ...	55	31	36	17
Total	67	47	49	35

^a 32 per cent. ^b 75 per cent.

Note: Read the table as follows: In the four most adaptable large communities there were two institutions represented by 25-29.99 per cent of the teachers in a system. Both institutions may be represented in the same community or each may be represented in a different community.

In this table are tabulated the total number of institutions represented by various percentages of teachers in each district. It will be observed that in the four most adaptable districts were found

four institutions which were represented to the extent of from 5 to 10 per cent of all the teachers. Other figures in this table are to be interpreted in the same way.

The first thing to note in Table 47 is the fact that in both large and small communities the most adaptable schools represent a greater number of training institutions. It would appear from this that there tends to be a greater diversity in the source of teachers in the more adaptable communities large or small. Furthermore, in both large and small most adaptable communities there is a markedly greater number of institutions represented by less than 5 per cent of the teachers in any community. There were 55 such institutions in the large most adaptable communities and only 31 in the large least adaptable communities. For the small communities these figures were 36 and 17, respectively. Moreover, the greatest concentration on a single institution in large communities was found to be in a school with low adaptability. Thirty-two per cent of the teachers had been educated in this one institution. In small communities the highest concentration was found in one of the least adaptable schools. In this case, 75 per cent of the teachers came from one college.

Table 48 consolidates the materials of Table 47. In it the 5 per cent point has been taken as the dividing line. We see that in both large and small districts the most adaptable communities have more institutions represented by less than 5 per cent, while the least adaptable communities have more institutions represented by more than 5 per cent.¹

It is apparent from the data in Tables 47 and 48 that variety of institutions in which teachers are trained is directly associated with adaptability.

There is another aspect in which differences were found in terms of places where teachers are trained. In both large and small schools there is a significant and noticeably larger proportion of teachers in the more adaptable schools who have been trained out-

¹ The chi-square test of significance for the fourfold table of large communities was 3.88. This exceeds the 5 per cent point and is therefore judged *statistically* significant. An even greater chi-square was observed for small districts, 5.44. This too exceeds the 5 per cent point but is less than the 1 per cent (6.64).

TABLE 48

Representation of Teacher-Training Institutions in Most Adaptable and Least Adaptable Schools

GROUP OF COMMUNITIES	NUMBER OF INSTITUTIONS REPRESENTED		
	By Less than 5 Per Cent in Any District	By More than 5 Per Cent in Any District	Total
Four large most adaptable	55	12	67
Four large least adaptable	31	16	47
Total large	86	28	114
Four small most adaptable	36	13	49
Four small least adaptable	17	18	35
Total small	53	31	84
Grand total	139	59	198

side of the state of Pennsylvania. In one of the most adaptable schools 36 per cent of the teachers had received some form of training in institutions outside the State. In small schools only one of the four least adaptable systems had more than 20 per cent of its teachers receiving some type of training in institutions outside the state. The four most adaptable small schools had 20 per cent or more of the teachers receiving part of their training outside the State.

There is additional support for the inference drawn above that diversity of training in terms of institutions represented is associated with adaptability. The schools in which circumstances make it possible for teachers to be drawn from many training institutions within the State and even from outside the State tend to be more adaptable. The causes for this situation have not been subject to analysis or complete explanation. Undoubtedly the question of the home-town teacher, which we know is associated with certain economic and social circumstances in the community, tends to produce a concentration on a given type of institution. Undoubtedly, also, the economic factor is important in making it possible for communities to select teachers from a much greater area and to provide salaries that permit going farther afield for supplementary training.

The Effect of the Training Institution upon the Teacher

An analysis of the adaptability of school systems in which certain institutions were represented by at least 10 per cent of the teachers shows that some institutions serve the least adaptable schools and others tend to serve the most adaptable schools. Large institutions, such as Pennsylvania State College and Columbia University, have been found to serve all types of schools. However, there is a significant variation in the average adaptability in school systems representing the various colleges and universities.

Some thought was given to the question whether one should place responsibility at the door of the institution most commonly represented in the very poorest school systems, but after checking upon the school systems they were found to be in communities which were handicapped in economic resources, in size, or in general cultural conditions of the community. Hence it was thought that a fairer method of comparing the adaptability of communities which absorbed large proportions of teachers trained in a given institution would be to adjust adaptability measures to allow for differences in local economic and social circumstances. These scores were then averaged for all communities representing to a considerable degree a given institution. Thus a score was obtained for each institution. Differences in these scores were not significant. In other words, conditions existing in a community to a great extent offset the advantages or disadvantages in the type of training which its teachers have had. Some institutions are favored in being able to serve school systems which for other reasons are in a position to adapt. Others are handicapped because of the fact that a teacher, regardless of training, must go into a community in which circumstances do not favor adaptability. The effect upon the teacher of the type of institution in which he was trained is a matter which would justify further research.

We had only one measure of a qualitative character for individual teachers. This was the questionnaire, *What Should Our Schools Do?*,² measuring the extent to which teachers accept the principle

² Mort, Paul R., Cornell, F. G., and Hinton, Norman H., *What Should Our Schools Do?*—A Poll of Public Opinion on the School Program. New York: Teachers College, Columbia University, 1938. Cf. Supplement B, pp. 496-497.

of adaptability or the introduction of new practices in the school. It was not possible to carry forward an extensive analysis of variations in the attitudes or opinions of teachers in connection with the institutions in which the teachers had trained. Two school systems in our sample were found to have teachers trained in approximately equivalent proportions in four teachers colleges in the State, one university in the State, and one university outside the State. These six training institutions were represented by 31 teachers in the first district and 47 teachers in the second district. The analysis was therefore made on the basis of 78 teachers. The average score in one district was 82; in the other district, 77. The average score for teachers representing the six training institutions varied from 79 to 87.

The difference between the two district averages (82 and 77) was found to be *highly significant*.³ There was, furthermore, a marked difference between scores of teachers in different districts *though trained in the same institution*. It so happens that one of the two communities is a very adaptable one and the other not so adaptable. We have shown elsewhere how teacher opinion is related to adaptability, and it is well illustrated in the present case. The level of opinion was higher in the more adaptable of the two schools and the variation was *highly significant*.

This analysis supports the hypothesis that selective factors are operating to place some teachers trained in a given institution in communities that cause them to accept a progressive attitude while others are placed in communities that impose a conservative attitude. This may be due to de-educative effects encountered by teachers in service after the period of training, which might tend to offset skills and attitudes and ideals acquired in their college work; or, it might be that the poorer communities, which are also the least adaptable, are not able to attract better teachers. There is the third possible alternative, that the present training of teachers may have little to do with their ideas of what should be done to modernize schools and how they could go about it.

Does the college have as much effect on level of opinion as the district in which the teacher teaches? In answering this question we observe, first, that differences among colleges were no greater

³ See Supplement B, p. 496, for statistical treatment.

than expected sampling differences. Even differences among scores of teachers representing different institutions *though working in the same school* were statistically negligible. This certainly would seem to indicate that, so far as a forward-looking philosophy of education for the teacher is concerned, it does not matter whether the teacher is trained in one institution or in another.

This would serve to lend some support to the third alternative, that teacher-training institutions in general do not make crusaders and that there is no significant variation in this failure. Perhaps justifiable in terms of adaptability will be the newer function of the teachers college of providing workshops and of developing "service areas." Coupled with a new type of pre-service training which will train for adaptability, this may be an encouraging advance in teacher preparation.

Summary and Implications

1. The part played by teacher-training institutions in the diffusion of specific adaptations is rather small. It is of interest that they are now somewhat active in the introduction of the newest adaptation studied—the integrated curriculum. They are also somewhat active in the diffusion of special classes and of supplementary reading.

2. Communities that draw their teachers from a large number of institutions, with no institution providing more than 5 per cent of the teachers, are the most adaptable.

3. No significant differences were found among the communities having a large number of teachers from one institution favoring any one institution above others.

4. Adaptable schools tend to have more teachers trained outside the State.

5. Large institutions both in and outside the State are found represented in districts of all levels of adaptability.

6. The inference from (4) and (5) is that adaptable schools select more adaptable teachers regardless of the institutions, or that other factors are more powerful in determining adaptability than the influence of the institution, or that present training has little to do with the concepts teachers possess with respect to the modernizing of education.

Non-Local, Unofficial Agencies and Diffusion

THE preceding chapters have discussed activities of professional agents of the public school system, both state and local, and the participation of exclusively local individuals and groups. This chapter deals with influences which are not local and which are not a part of the state educational system.

Evidences of the operation of non-local agencies were obtained with reference to the nine adaptations in various ways. First, the presence of influences from such agencies was noted for each adaptation in each of the forty-eight communities. Special attention was given, further, to activities of educational institutions, colleges, and universities, particularly private institutions and those not located in the state of Pennsylvania which bear upon the introduction of adaptations in individual communities in a way quite independent of the official educational machinery of the state.

An additional manifestation of the effects of non-local, non-official agencies was obtained by classifying the effects of one important medium, literature. While some professional literature is official in nature, a great number of our professional journals and publications and particularly bulletins and monographs are unofficial and serve as a method by which many of these non-local agencies disseminate information.

Non-Local, Unofficial Agencies and Nine Adaptations

The first type of information on non-local agencies is presented in tabular form in Table 49. From this table one may observe that the direct relationship between unofficial, non-local groups and the school system is not great.

With reference to the kindergarten we found parent-teacher associations, although operating as local groups, exerting pressure by way of petitions for public kindergartens in line with the policies of the national organizations to which they are allied. In earlier periods a similar local activity through non-local sponsorship was observed in leadership in some communities through women's clubs

and kindergarten associations. Private philanthropy and private interests have exerted indirect stimulation through the establishment of private kindergartens in the community. In many cases, through this example, parents saw opportunities for their own children which they felt should be made available through the public school system.

In one school district the Y. M. C. A.—a national organization—had indirectly contributed by permitting the use of its housing facilities for a private kindergarten which was the forerunner of public service of this type in the community.

TABLE 49

Frequency of Observed Influence of Non-Local Agencies Other Than State Educational Systems with Reference to Introduction of Nine Adaptations in Forty-eight Communities

ADAPTATION	NUMBER OF COMMUNITIES IN WHICH NON-LOCAL GROUPS ARE OR HAVE BEEN ACTIVE	
	Communities with Adaptation	Communities without Adaptation
Kindergarten	4	6
Reorganized High School	5	2
Special Classes	3	0
Homemaking for Boys	0	1
Adult Leisure Classes	9	2
Extra-Curricular Activities	17	3
Elementary Final Examinations	0	0
Integrated Curricula	3	3
Supplementary Reading	9	12
All Adaptations	50	29

The non-local organization most frequently works through some local supporting agent. The introduction of kindergartens in one city district illustrates this point. A local women's club was instrumental in the drive for a public kindergarten, but at the suggestion of the National Kindergarten Association. In the process the non-local agency used the device of bringing the community *without itself*, so to speak, for its convincing argument was the array

of other important cities in Pennsylvania with kindergartens. A local committee finally successfully petitioned the board of education for the kindergarten on these grounds. In one community, outside interest took the form of direct financial support of a local kindergarten in the public school system through benefactions of an individual philanthropist.

Operating in the process of diffusion is a force which we have termed "herding." A movement becomes well known and the sheer commonness of evidences of its existence or of expressions of the idea places the teacher, the administrator, or the school board member in the position of knowing of it and thus of eventually introducing it in his own school. A similar phenomenon is seen where the community contains an individual—the superintendent of schools, a member of the board of education, a teacher, a parent, or perhaps a group—interested in "keeping up with the Joneses." The neighboring community has provided certain types of new opportunities for its children and by invidious comparison the change is made in the community concerned, not as a result of a thorough consideration of merits of the program and very frequently without a modification of the program to fit the needs of the particular educational problems involved.

Negative influences of non-local organizations were also observed in the case of the kindergarten adaptation. Indirectly local units of state-wide or nation-wide political organizations and organizations established principally to effect economies in governmental service and reductions of local taxation served to inhibit the introduction of kindergartens primarily upon the basis of cost involved. Another type of negative influence was encountered in one community which had a strong representation of members of a religious group. This group objected to local pressure for public kindergartens because of competition of the two separate school systems and overlapping sources of financial support.

The most common type of influence exerted on the homemaking for boys adaptation was the stimulus brought about by the summer camping movement. Private boys' camps and Boy Scout work directly resulted in demands in the line of camp cookery for clubs in which boys could participate in this work. This is but one

illustration of the influence of many organizations, such as the Boy Scouts of America, the Young Men's Christian Association, the Friendship Clubs, and others which have introduced external influences upon the development of a great variety of curricula as well as extracurricular interests in our schools. It is the most common type of influence of a direct nature on the part of non-local unofficial agencies.

Many organizations which encourage a particular phase of extracurricular work have been found to be operating in public schools. Hence we find in Table 49 that in places where progress has been made in furthering extracurricular work, a good share has been due to non-local groups. Among agencies of national scope influencing the enrichment of the extracurricular activity program are the National Red Cross, the Y. M. C. A., the Hi-Y clubs, and the Future Farmers of America. All of these groups tend to extend the extracurricular activities program to the extent that greater importance becomes attached to them, but not necessarily to the point that they are given a more important position in the program of the school. We may view these non-local influences as largely conducive—not direct.

The complexity of relationships of state and national groups to extracurricular activities is suggested by notes on their development in one district. As early as 1920, the Y. M. C. A. appeared before the board of education and proposed that a physical director be employed jointly by the Y. M. C. A. and the school district. A physical director was hired that year on the basis of the proposal.

The most direct contribution which outside, unofficial agencies have made to our specific adaptations has operated in the case of integrated curricula. One community in which experimentation was done in the merging of English and history in the high school was a participant in the five-year study of the Progressive Education Association on the relation of high school to college. This district had participated in the Carnegie study also directed to the question of determining the adequacy of college preparation in our high schools.

It is rather interesting that the contribution of the implementation work of the Progressive Education Association has not shown

up throughout the study. A great deal of national interest has been shown in this study but its results do not penetrate to the great mass of public school systems throughout Pennsylvania. Indeed, it is probably true that the Progressive Education Association's work was not intended to contribute directly to local processes of diffusion and undoubtedly the full force of their experiments will not be felt until the publications of the Association have been more widely disseminated and discussed.

The authors believe that if this type of thing is to be done on a large scale in the state of Pennsylvania, recognition would have to be made of the fact that successful adaptation takes place in gradually successive steps. The notion of integration is so far ahead of the pattern of education in most Pennsylvania high schools that even in communities in which introduction is now reported, it is attempted only on an experimental basis. In the one community participating in the work of the Progressive Education Association there was found only a small section which had been very gradually swung over to an experimental course after a period of some four years of planning and study and forward movement, step by step.

Other sporadic influences on the integrated curriculum adaptation were those of the National Education Association, American Legion, and the United States Office of Education in sponsoring special educational meetings and forums contributing to a realistic concept of education.

Another agency which wields considerable influence is the high school accrediting agency. Its effect on the reading facilities of schools was noted particularly. In one district the supplementary reading adaptation was unique in that it was auxiliary to the demands of accrediting institutions, which in checking on the high school library indicated a need of expansion of this service. A teacher was asked by the superintendent to take special training in library work to meet this demand. As the superintendent explained, by connecting this work with the elementary extension reading program he was able to kill two birds with one stone. So when the library work was expanded and a special librarian was provided, the superintendent insisted that the librarian read up on elementary school children as well as high school children.

Commercial Interests and Adaptation

A theory of the open market and free competition by private enterprise in the development of school supplies, equipment, textbooks, and instructional materials has stemmed from much the same belief in laissez faire which has been expressed in the great freedom from control within which local units have been operating. Through the competitive system, it has been believed that individual initiative will be stimulated to greater heights in the creation of educational materials for our schools. Unfortunately this theory has not taken into consideration two factors: (1) the incompetency of many local authorities to make adequate choices, and (2) the failure of the system to operate in many cases in open competition. The manner in which this theory has operated, or has failed to operate, has contributed interesting side lights on the influence of the commercial world upon educational adaptability.

But first let us emphasize that this whole matter is simply an aspect of the current American economic system and one which we are not attempting here to appraise. We scrutinize its effect upon educational adaptability only by means of such casual observations as we have been able to make, for purposes of suggesting hypotheses which may lead to the successful operation of a plan not given a chance successfully to operate.

The textbook publisher has had relatively free territory in the United States. The plan of state publication and state adoption of textbooks has not been widely used. Where, for the most part, our schools have not reached the level of professional adroitness and have not acquired characteristics of self-perpetuating adaptability, the textbook has a profound influence upon the educational program. It has been the experience of the writers in visiting many schools on many levels of adaptability that the American classroom is still dominated by the textbook. In this we shared the alarm of the theorist and the curriculum specialist until we examined the textbook as a vehicle through which school systems achieve educational reform. Viewing the ineffectiveness of the many agencies and devices discussed in other chapters and the many positive gains attributed to the textbook, it is not exaggeration to say that much

of the progress of the present century has ridden in with the phenomenal transformation of the reader, the grammar, the biology, or the arithmetic. It is undoubtedly true that the better publishing houses are far more sensitive to the need for change than are the school systems. Even though the commercial concern must not depart to such an extent that its products will not sell, for success depends upon giving the customer what he wants, there has been just enough sales value in this or that new feature to place the textbook in the lead.

If we extend our subject to include other commercial educational materials, from ready-made record systems to musical and laboratory instruments, we see that the influence of the *non-local* commercial world has reached in some way each of the nine adaptations selected for special study. The merchant is still a carrier of culture, even to the schools.

Influence of Professional Literature

In Table 50 are shown frequencies by which communities were

TABLE 50

Frequency of Observed Influence of Educational Literature with Reference to Introduction of Nine Adaptations in Forty-eight Communities

ADAPTATION	NUMBER OF COMMUNITIES IN WHICH ADAPTATION WAS OR IS INFLUENCED BY LITERATURE	
	Communities with Adaptation	Communities without Adaptation
Kindergarten	7	6
Reorganized High School	13	12
Special Classes	11	8
Homemaking for Boys	2	3
Adult Leisure Classes	6	8
Extracurricular Activities	17	5
Elementary Final Examinations	14	4
Integrated Curricula	4	7
Supplementary Reading	17	21
All Adaptations	91	74

classified as having been influenced by professional literature with reference to the nine adaptations.

As a whole, it appears that the professional journal is a very indirect and inadequate means of producing actual changes in the school systems of a state. Much greater influences may be expected from a frontal attack upon many of our educational problems by the leadership of either official or non-official groups in planning a program which takes advantage of the tremendous assets of the organizations which have interests compatible with progress in many areas of educational service, but which have been operating with but mild and sporadic effect, as evidences in this chapter reveal. We must view professional literature as a means of "clearing the air" until local units have been organized to make greater use of it. In none of the instances in Table 50 was "literature" of direct precipitating influence.

Summary

From the foregoing analysis it appears that many agencies which are organized for purposes of implementing particular aspects of educational service rarely appear to offer a frontal attack in effecting changes in individual school systems. Furthermore, it is to be observed that most agencies take on responsibilities for some particular aspect of the educational program. In no case in our sample of communities was there recorded the operation of influences from a non-official agency which was driving toward thoroughgoing reform.

The importance of expanding the horizon of professional workers beyond the limits of their local communities was suggested in Chapter XI. There it was shown that in the most adaptable communities the teachers themselves are able to reach beyond sources of information within the community and obtain a greater proportion of ideas from the outside.

If increasing adaptability is a problem in which all sources of influence are operating, one must consider the advantages to be had in mustering the resources of all concerned, whether or not they are blessed with the sanction of officialdom.

The Climate of Opinion—Parents and Teachers*

Most parents and teachers recognize that many practices in education exist simply because of tradition. But teachers and other professional educators cannot be held solely responsible for the many archaic educational ideas and practices which still prevail. Often it is the lay members of the community who are responsible for retaining formalism and academic niceties in the school program; and popular demand is probably a greater retarding influence than lack of progressiveness on the part of the professional staff.

Just what does the public demand of the publicly supported school? What is the popular attitude toward newer ideas in education? The results of our Poll of Opinion throw some light on these questions. Some five thousand citizens contributed to the results here set down. From these results it is possible to sketch interesting comparisons between what parents think and what teachers think.

Let us consider first a few specific matters of administrative policy: Parents and teachers agree that public school teachers should be recruited from among the most capable people in the country, although at the same time it is felt that preference should be given home-town teachers. It is also believed that teachers should enjoy the same social and economic status as do members of other professions. A great majority of citizens recognize the need for Federal participation in the financial support of public education. No outstanding majority of respondents express sentiments favoring an increase of men teachers in public schools, or a single salary schedule which would pay elementary and high school teachers the same salary for like training and like service.

A large majority, that is, 83 per cent of the parents and 90 per cent of the teachers, record their conviction that since things are constantly changing in the economic and social world the schools must also modify their programs to keep up with changes in problems of living. Parents and teachers agree that education should

* This chapter appeared as an article in the October, 1939, number of the *National Parent Teacher*.

not be fixed, that progress cannot be expected in school practices apart from experimentation, and that there is as much need for research in education as there is in the world of business and industry. Many of the social and economic ills of America, it is thought by 87 per cent of both parents and teachers, may be solved by providing more and better education.

With respect to the general subject of flexibility and change in the school program there are some fine points upon which both parents and teachers definitely disagree among themselves. Most parents and teachers, 86 per cent of parents and 92 per cent of teachers, believe that our educational system should seek to improve society, that we should not be satisfied merely with continuing social and economic conditions as they exist today. About half, 35 per cent of parents and 63 per cent of teachers, balk at the notion of educating for a better society if it must be done at the expense of the much older objective of consolidating and passing on the cultural gains achieved in the past. Moreover, a number are a bit uncertain when it comes to the question of just how this change is to take place. There is about an even split between those who accept new ideas now emerging in the schools and those who, though recognizing the need for change, feel that new ideas in education are all right in theory, but not in practice. Interestingly enough, when the question of change is related to possible costs, a great number of patrons and teachers qualify their enthusiasm for educational progress.

Parents lose some of their enthusiasm for experimentation in schools when attention is called to the possibility of its interfering with the "regular school program." On the whole, however, teachers stay by their conviction. Experience through the depression has shown that the public is inclined to consider some school activities essential and others not essential. The former activities make up the "regular program," and include such subjects as reading, writing, arithmetic, mathematics, and biology. Extracurricular activities, clubs, and instruction in art and music, as "fads and frills," have suffered during periods of retrenchment. Similarly, recent supplementary services, such as the testing program, the supervisory program, guidance, the visiting teacher program, or the research de-

partment of the school, are often considered first among items of expenditure which are to be eliminated.

Teachers, for the most part, have come to realize that it is possible to introduce new types of instructional aids, or to engage in new types of class activities involving dramatizations, excursions, and similar activities without sacrificing the older objectives of education which we all have been accustomed to revere. The difference of opinion between parents and teachers here is probably due, in part, to the advantage which teachers have in knowing just how the introduction of experimental techniques may or may not disrupt the educational program. Well they know that many of the most valuable experiences they have been able to bring into the lives of boys and girls have come through the handling of spontaneous situations.

Shibboleths in American Education

It is a very common practice for the individual to accept a viewpoint, only to reject it as soon as it becomes associated with a concept or label which, justifiably or otherwise, he has come to dislike. He may reject it later when he finds that the policy conflicts with personal loyalties and prejudices, or with patterns of thought which are dear to him. Tactful administrators see "Don't touch" written after a good many subjects they might like to discuss with the public. Yet in most of our communities seemingly deep-rooted elements of our cultural beliefs are not as permanent as might be supposed. Our poll of opinion, for example, shows that giving information about Communism in our schools is not the forbidden procedure that many of us take it to be. For example, 69 per cent of parents and 90 per cent of teachers do not feel that the attractiveness of Communism is so great that children should not be given information regarding Russia. Parents and teachers do not, as a whole, believe that a winning football team is more beneficial to a community than a good curriculum, hearsay to the contrary notwithstanding. Moreover, they feel that children should be taught the facts regarding the affairs of the United States, though it involve dragging political skeletons from the closet and imparting knowledge about some rather unfortunate experiences in the past.

Steering clear of the "radical" seems desirable to many of those questioned. Just what a "radical" view is, in the judgment of teachers or typical parents, is not known. But we are definitely inconsistent when, on one hand, we accept the notion of permitting points of view to be presented to school children, while, on the other, we believe that speakers with "radical" views should not be permitted to speak in our high school auditoriums. Presumably, if "radical" is taken to mean, as it often is, merely an extreme departure from the accepted point of view, such speakers would not necessarily be unacceptable in all cases.

The age-old conflict between science and theology illustrates another matter to which many have not become reconciled in their thinking. Thus we find that approximately two-thirds of the parents and half of the teachers believe it is contrary to American ideals to teach the theory of evolution.

The enthusiasm of parents and teachers for school progress that will open up to young people the truths of life is somewhat dampened when old taboos are brought into the picture. One of these is the question of sex. No question was raised in our poll as to whether it is possible to provide better sex training in the home or in the school; but a slight majority of parents and teachers, 56 per cent and 54 per cent, respectively, believe that the proper place for sex instruction is in the home, not in the school.

As to the whole matter of treating debatable questions in school, a slight majority of parents feel that teachers should present to their pupils the point of view most nearly in accord with the opinion prevailing in the community, while a bare majority of the teachers thought this should not be the basis for deciding the subject matter of class discussion.

A Broader Curriculum

In the old school, and in many schools, today, the nature of the instructional program in the classroom is determined largely by the textbook or the traditional content of the subjects offered. Many people still believe that somehow if children can be urged through the often very tedious process of learning great masses of unrelated facts, they will emerge with minds well trained for the tasks

of life. In our better schools, however, there has been an abandonment of those exploded theories of learning which held that the study of subject matter trained the mind and justified the practice of putting children through an inflexible program of formal instruction to improve their learning powers. These concepts have given way to a philosophy which emphasizes the importance of providing many genuinely lifelike situations in which to experience firsthand, typical, worth-while problems. The need for well-assimilated knowledge and well-formed habits is not disregarded. Rather, these things are looked upon as necessary tools, the primary purpose being to educate children for satisfactory adjustment to living situations.

Do parents and teachers support this newer approach to the curriculum? In many respects the answer is yes; in others, no. Unanimously it is felt that the ability to learn facts is of no importance unless the ability to apply these facts is also acquired. Nearly all agree that the school is not to be judged in terms of the amount of subject matter the pupils have learned. Over two-thirds of the parents and teachers believe that textbook learning should give way to increased learning through experience and that reading instruction in all grades should consist of more reading for research, appreciation, and recreation, and less reading by recitation from the textbook.

As a whole, opinion favors enriching the curriculum with experiences and activities of the type less formal and less routine than the drills and memory exercises which too often are thought to be the chief content of the educational program. It is believed that social studies in our schools, instead of being limited to the traditional forms of geography, history, and civics, should emphasize contemporary problems. Community life itself should be the source of many of the problems treated in regular school work, and pupils and teachers should be free to seek and discuss all available facts on controversial issues.

But the answers to other questions indicate that there are many reservations. When asked specifically whether they believed that all the arithmetic needed in adult life could be learned in half the time now devoted to this subject in our schools, three-fourths of the

parents and one-half of the teachers said no. As a matter of fact, most parents and teachers feel that changes in education should be made only on condition that the "basic fundamentals" of the "solid" subjects be retained. About three-fourths of our people do not want education made too easy.

Strangely enough, most parents and a small majority of teachers justify mathematics instruction because it is thought to serve as a means of training the mind. Yet half the parents definitely feel that children are required to learn too many things that are of no value to them.

Individual Needs of Children

One significant movement in American public education has been in the direction of compensating for the drab impersonalness of mass education which our American ideals of free public education have produced. The better schools are now centering the efforts of specially trained psychologists, supervisors, and administrators upon the individual needs of children themselves.

Masses of scientific reports accumulated during the past quarter-century show us that no two school children are alike, in intellectual qualities, in interests, in aspirations, in ideals, in social qualities, or in home background. It is becoming recognized that every little incident in the life of a child produces directly some change in his personality. Whether Johnny's school experience is good, bad, or indifferent, we realize that at the time of the dismissal bell of any single day he is not the Johnny he was when he arrived in the morning. Perhaps the change has been for the better, perhaps for the worse. Too seldom are we sure.

Parents and teachers agree, for the most part, that schools should not expect all children to reach the same standards of achievement, and that changes in school organization and administration should never be made unless they improve opportunities for boys and girls themselves. A majority readily endorse the proposal that instruction and classroom activities of all sorts be adapted to the individual aptitudes of each child. In doing so, most parents and teachers believe that success in learning is greater when learning results from the incentives and interests of children themselves. They

believe, for the most part, that each child should experience success more frequently than failure. They express some dissatisfaction with the present system of school marks when they agree that competition among pupils for marks is not fair to pupils who are naturally slow.

Here, as in other aspects of educational policy, there is by no means perfect accord. In the matter of marking and promoting children, neither parents nor teachers are ready to do away completely with uniform standards of attainment. Most parents and teachers believe that children should repeat work when tests reveal that they have not attained mastery of minimum essentials in their work. They are somewhat disturbed by the possibilities of too much freedom as a result of relaxed standards, for they believe that children have as much need for practicing restraint as for exercising freedom. Actually, about two-thirds of the parents' group contend that changing the school program to suit the interests of individual pupils will result in aimless activity and waste of time.

In many respects teacher reactions to questions in this area differ from parent reactions. A substantial majority of teachers, but a bare majority of parents, feel that each child is different from every other child, and that, therefore, each should be treated as an individual in the school. Teachers are somewhat more liberal in their attitude toward setting individual standards for children. On the other hand, parents are about equally divided on the question of whether or not under any circumstances physical punishment or scolding is a satisfactory corrective for pupil misbehavior. A surprisingly small percentage of teachers expressed willingness to condemn these methods.

A Challenge for the Parent and the Teacher

The public opinion expressed here is neither seasoned nor enlightened opinion. It represents what parents and teachers think when they are not subjecting their ideas to critical appraisal. It is the sort of opinion that is expressed in the supposedly inconsequential chat of the family circle or the teachers' lounge. Therefore it is the sort of opinion on which day-by-day action is based, And therefore, also, it is significant. These expressions of sentiment tell

us that parents as a group and teachers as a group, while hopefully in agreement on certain broad issues, have divergent beliefs and opinions on many points on which it would be helpful for them to understand each other better. Opportunities should be provided for them to build toward a common point of view, a more unified response to the needs of children.

Progress in public education requires continuous reconsideration of our aims and purposes. Public education in America is a cooperative enterprise. For parent and teacher a choice must be made between the following:

First, the kind of education of a generation ago was good enough for adults of today. It is good enough for the next generation. Professional people, teachers and administrators, have added many new ideas to education that we managed to get along without in years gone by. It is the responsibility of these professional people to conduct educational affairs, but as voters and as citizens in a democratic form of government, we reserve the right through our boards of education to express opposition to newer practices which do not meet with our approval.

Second, many circumstances existing a generation ago do not exist today. There is no evidence to support the view that a very different type of school twenty-five years ago might not have produced a much better America to live in today. The human affairs of civilization are certainly as important as the material affairs to which we devote so much attention. It is the duty of the public to acquire some understanding of innovations in school practices before they pass judgment on them. In a democracy, the public has an opportunity of indirectly controlling public educational policy, a right denied citizens of many other countries today. To fulfill their responsibilities, laymen enjoying this opportunity should avail themselves of all opportunities to assist and encourage the professional people, whom they employ, in carrying out their part, and to enable them to understand fully the true nature of public opinion.

To the professional staff, the challenge involves the continuous justification of school practices in terms of the lives of boys and girls, and the development of means of adequately submitting to the public just what is being attempted and its justification in fact and

theory. For the parent and citizen the challenge demands essentially that more thought be given to the many aspects of public education in order that the influence of public sentiment upon the school system may be free, as far as possible, from conjecture and prejudice.



EDUCATION IN THE COMPOSITE COMMUNITY

Schools in districts made up of a cross section of elements of community economic life rank second only to the residential districts in adaptability of schools, the amount spent for education, and the experimentation and amount of training of teachers. Schools in these districts are forced to keep pace with the complexity of the culture. Populations in composite communities are larger, stabler, and older than in other community types.

PART IV

Summaries of Conclusions and Inferences Bearing on Three Approaches to the Improvement of the Adapta- bility of Schools and School Systems

The three chapters which follow describe three patterns into which the findings and implications of our study have taken form in our minds. These patterns represent different but complementary approaches to the problem of improving education. In rounding out the findings and implications in the working patterns we have fitted together certain conclusions which are established as scientific and certain other conclusions based on less well-established hypotheses.

Chapter XVII presents a structural pattern for a state school system. It includes both organization and personnel that promise to increase adaptability. Chapter XVIII deals with the processes by which adaptation may be brought about within a given organizational structure and with a given personnel. Chapter XIX deals with those findings and implications which it is believed will be helpful especially to interested groups and agencies outside the school system.

CHAPTER XVII

The Structural Design of an Adaptable State School System

IN THIS chapter the writers have drawn together the findings reported in the first sixteen chapters which in their judgment bear upon structural design—the framework of finance and control of a state school system. It is hoped that the reader will view this attempt at integration for what it is intended—a hypothetical generalization of conclusions and fairly well-supported hypotheses.

The Allocation of Control

The key to structural design is the allocation of control between central and local agencies. To serve adaptability the central authority must maintain freedom for action in as many local situations as can reasonably be expected to use the freedom constructively. By maintaining this freedom we do not risk the alternative of diffusion by central fiat.

We must seek to develop a type of structure which will favor diffusion in those communities which are free to accept or reject adaptation. The improvement of structural design, therefore, is not a simple problem. It requires the drawing of fine distinctions between areas in which schools shall be operated by local initiative and those in which they must be operated by direct central administration.

In considering all parts of this chapter, therefore, the reader should have in mind that the discussion is projected upon the assumption that local control is worthy of continuation as a basic element of the structural design of a state school system.

The School Districts

The true apex of a state school system is the local school district. School districts are established in the organic laws of some of our states. But whether established in the constitution itself or by legislative act, in most states school districts are empowered to act within their local area for all the people. Only in specifically de-

financed areas are they subject to the control of central (state) administrative agencies.

To be adaptable the school district should be large rather than small, advantages being gained by increase in size at least up to an area including 100,000 population—the largest considered in this study. It should be so laid out that it consists of as representative a cross section of population and as complete a social and economic unit as possible. Whenever it can be avoided, a school district should not be made up mainly of one socio-economic group, such as miners, business men, farmers, or clerical workers. However, a school district consisting of a homogeneous population segment of a large community of varied social and economic life is less handicapped than a similar district geographically isolated.

In the formation of school districts consideration should be given to elements of culture. We have noted that the presence of population segments with a relatively high cultural level, with good educational background, and with a keen realization of educational needs is more important for the adaptability of schools than merely a high average cultural tone in the community.

The school board is the executive committee of that committee of all the people of the state—the school district. The “ward’s-eye” view tendency of school board members certainly makes necessary the use of such a device as election at large that promises to offset it. Whether there should be other structural features in the formation of school boards, besides the commonly favored ones of overlapping terms and non-political election, is a moot question. Certainly if anything can be done to lessen the load of the professional group in creating public-minded citizens out of school board members, it should be tried. Two lines of attack are suggested: (1) experimentation in selective requirements and methods of selecting board members, and (2) raising the level of community understanding of educational problems. The second point is discussed in some detail in Chapter XVIII.¹

¹ Attention should be called to the fact that our studies in Pennsylvania do not deal with the important question of fiscal independence of school districts. The school districts of Pennsylvania are all fiscally independent; therefore, there was no comparative basis for examining this question in this study.

Financial Resources

Adaptability demands more of school districts than adequate size and proper community pattern. School districts must be able to operate on an expenditure level high enough to secure rapid diffusion of adaptations. A goodly number of school districts in the state must be on a sufficiently high expenditure level to encourage invention and early introduction. The property tax, which supports local initiative, must not carry a burden out of balance with other taxes.

Expenditure and local tax burdens are bound up with the question of state aid. Proper consideration of them goes far in defining the nature of a state aid program. In the first place, diffusion is related to minimum requirements; in the second place, unburdened local resources are requisite to the freedom of school districts to do more than the state requires by way of invention and early introduction.

MINIMUM EXPENDITURE LEVEL

To secure a reasonable flow of adaptations once they are under way, providing the requisite levels of expenditure is of the utmost importance. An adequate number of trained teachers, good leaders, and the other services school funds may buy are essential if adaptations are to diffuse. The indication is strong that the minimum current expenditure with which local initiative can effectively operate is approximately \$2,000 per elementary classroom unit.² If this proves tenable, we can expect local initiative to break down under demands for more rapid change in school districts educating something over half the children of Pennsylvania and in a similar proportion of the schools of America. The implications are that the state should implement a minimum expenditure level approaching \$2,000 per elementary pupil.

It is clear to students of school finance that this goal cannot be achieved simply by mandatory requirement. In addition, a plan must be introduced by which taxes are raised over the entire state

² About \$70 per pupil in average daily attendance in grades 1-8 and about \$120 per pupil in average daily attendance in grades 9-12, transportation costs and differential amounts required for cost of living not included.

and made available to districts on an equalization basis, not only in order that districts may meet this minimum level, but also that they may have tax leeway for the introduction of adaptations which may permanently or temporarily add to their expenditure.

How far we fall short of this is indicated by the fact that in every state, with one or two possible exceptions, we have some districts operating considerably below this level. The majority of states have half or less than half of their districts operating below this level. Such states can bring about the equalization of a \$2,000 level without placing a strain on taxpayers which would jeopardize programs in the districts to which we must look chiefly for invention and early introduction of adaptations. In some states all districts are below this level. In about a fourth of the states the job cannot be done unless the public willingly accepts a significantly larger burden in all districts or, as an alternative, federal aid. In a few states the burden of meeting this minimum would be so heavy as to bar any solution but federal aid. There is a strong probability that they will find themselves faced with the anomalous situation of getting federal aid or losing local initiative. If they fly from local initiative to some other device (state centralized operation) to attain adaptability, they have no assurance whatever that adaptability will result.

Clearly this issue is of such importance that it should be subjected to further and more conclusive tests without delay.³

EXPENDITURE ADEQUATE FOR INTRODUCTION AND DIFFUSION

But the problem is one of invention and early introduction of adaptations as well as of their diffusion. The indications are that an adaptable state school system must have an ample number of districts on an expenditure level considerably higher than \$2,000. Our too sketchy data on higher level schools suggest that expenditures up to at least \$4,000 level are desirable. It is for this reason that we say that a state must bring about equalization by a general willingness to carry heavier taxes. The low levels must not be brought up by lowering the level in high expenditure communities.

³ Further strong support for this hypothesis is furnished by a study directed by the senior author for the Commission on the Legal Status of Rhode Island Public Education. This study, published in February, 1941, embraced thirty-eight of the school districts of Rhode Island.

We have noted that diffusion in the period of invention and introduction is particularly slow, and that the period elapsing between the discovery of a need and a practical invention may be as long as the whole period of diffusion. No doubt there are some states in which we may expect little from local initiative in the way of invention or early introduction. The states of general low ability that do not have communities which can provide conditions favorable for invention and early introduction must look to the state department of education to a degree not required in the abler states. In such states the state department of education must be particularly alert to what is going on in the abler communities in other states in order that it may take a hand in bringing about a timely introduction of new movements into the state.

It should be borne in mind that in permitting individual communities to provide conditions favorable for invention and early introduction, the able states are making a national contribution. The people of these states are making a contribution to education in the poorer states as truly as they are in a federal aid plan.

TAX LEEWAY

We have already noted that in helping local districts meet the minimum expenditure level, it is necessary to have sufficient state aid to maintain some tax leeway by which local initiative may be financed over and beyond the minimum program. But this is not enough. If we are to depend upon local initiative, the state must make such provision that the property tax is not unduly burdened in the poor districts nor in the able districts. In the poor districts it is a question of ability to pay on the property base alone; in the able districts it is a question of relative ability of the various tax bases to carry the burden of government. It has been argued that when taxpayers even in the able communities are being taxed on property out of proportion to payments on other bases, an unwillingness to support local initiative develops. Our studies and these of Knott⁴ bear this out.

To obtain willing support the state must see to it that property is not carrying a heavier burden of taxation than other tax bases. In

⁴ Knott, W. D., *The Influence of Tax-Leeway on Educational Adaptability*, 1939.

most states this requires use of other taxes to relieve the property tax and increased state grants to relatively able as well as poor communities, either for education or for local governmental functions, or for both. In the selection of these other taxes we must not overlook the fact that a mere shift from the property tax to another tax will not guarantee an increase in tax leeway. The shift must be to taxes which have a different incidence, or the result may be little change or actually a decrease in tax leeway.

Tax leeway may be brought about by any method that will shift the burden from the property tax to taxes having a different incidence. If support of public highways is drawn from taxes other than the property tax, or if aid to local government is paid by the state from taxes other than the property tax, the result is an increase in tax leeway which strengthens the basic support of local initiative. The favored plan is to support the cost of the foundation program of education with a local rate lower than that necessary for distributing the burden equally upon the people in all localities. For example, if a four-mill local rate, supplemented by state aid, would completely equalize a given program, the reduction of that local rate from four to three mills has the effect of shifting the equivalent of a one-mill property tax to state sources of revenue. If the state raises this revenue from sources other than the property tax, the result is a shifting of one mill from property to other taxes. While this does not provide for much tax leeway in the poor communities, in the able communities even one mill tax reduction will result in a sizable increase. Even a small tax applied to a large base will result in considerable tax leeway.

A warning should be sounded here. During the past two decades there has been a large measure of burden shifted from the local property tax to state taxes, particularly through increased state aid to education. When it is left to the community to decide the extent to which this reduction shall be used for tax reduction or for additional expenditure, local initiative is shored up. If, however, those who are concerned with property tax reduction without regard for its effects on local initiative, succeed in writing into the law a provision that the local taxes shall be reduced by a given amount, local initiative is dealt a death blow. For what value is it to have the

local property tax reduced if local authorities are not given the choice of using the leeway?

The determination of the size and other characteristics of school districts is definitely a function which the people—all the people—must exercise through central agencies. In practice, decisions as to reorganization of inadequate districts have generally been left to those living in the districts affected. As a result narrow localized interests often have greatly delayed progress.

Treatment of Poorly Organized Districts

Sometimes it is necessary to develop a temporary structure to be used until a satisfactory permanent one can be provided. Most states face this situation with respect to their school districts. School districts, poorly organized and inadequately supported, continue to operate under a form of local initiative in spite of the fact that local initiative cannot in any sense assure efficient operation of schools in such districts. The question may seriously be raised whether there should be a temporary structure of central control established over these districts. In fact, some differentiation in central control of local districts may be found in most states. For example, the establishment of the county superintendent and his assistants, financed as state department officers in Pennsylvania, is recognition of the fact that most districts of less than 5,000 population are inadequately organized to operate under local initiative.

We have noted that in most states the existence of large numbers of districts below the \$2,000 level represents a serious problem. Under the most favorable circumstances, this situation may not be expected to be corrected for decades. Short of federal aid, it is not likely that in some instances it will ever be corrected. Our results strongly support the need for abandoning the idea of any large amount of local control in such schools. Since we can look for but little adaptation in these areas, the solution would be for the state to establish a central agency for the direct operation of their schools.

We have two types of precedent for this procedure. In the state of Maine approximately half the area is unorganized territory, very sparsely populated. School facilities for the children in such areas are provided directly through the State Department of Education.

Some children are transported, some are sent to boarding schools, some are boarded in villages and towns. Schooling is provided at an expenditure level above that of approximately half the locally-operated schools in the state. Somewhat similar procedures are followed in the Canadian Provinces of Manitoba and Saskatchewan. The state of Rhode Island has permissive legislation giving the State Director of Education all the powers of a local school board under certain conditions. This is somewhat similar to the state administration of all schools in Delaware other than those of the fourteen special districts.

The other precedent is the greater degree of central control found in most southern states. This may well prove to be the only feasible solution to the problem where the vast majority of schools are operated on a level that favors neither early introduction nor diffusion. Short of central operation, consideration should be given to establishing a higher degree of restriction on local initiative in such districts. An example developed recently in the state of Missouri is to the point. The State Superintendent of Schools was permitted by law to grant full aid to certain small schools when he considered these schools actually necessary. Those who wrote the law expected him to grant this privilege to a few hundred schools out of four thousand. As a matter of fact, because of the impossible task that had been assigned him, he granted it to all but a few hundred. But in granting aid he was able to bring pressure on these districts to accept state supervision. State supervisors going into these districts actually operated the schools on a level higher than those operating without such control. The result was good, but the method was bad. It would have been far better for the legislature to place these districts directly under the supervision of the State Department rather than to allow the situation to develop as it did.

In various places in this report we have viewed diffusion by central fiat as relatively ineffective in producing permanent and thoroughly satisfactory results. But we have evidence that diffusion by local initiative is itself far from infallible in these respects. In reviewing the entire study, the authors have reached the conclusion that if certain safeguards are exercised, central authority may well take more than a cooperative attitude in speeding up change.

During this study we were impressed by the fact that the better educational outlook of the great mass of teachers seems often to follow the adaptation rather than precede it. This is borne out by the small part teachers have played in bringing about adaptations. That most enlightened public sentiment tends to be found in communities in which adaptations have been made largely without direct public participation is also significant. On the other hand, when we note how popular mandatory law has been as a means of speeding up diffusion, we find ourselves dissatisfied with the inflexibility of the results attained. The solution to the difficulty would appear to be found neither in too great dependence on localities nor in too much dependence on central fiat. A middle ground of central fiat expressed in general terms, with detail left to those local communities which have the capacity for adaptation, would seem to promise more rapid diffusion without inflexibility. In other words, the state department officers should work with the handicapped districts in the same manner as supervisory officers in a large city system. Local interests and needs would be taken into account, but the question whether the adaptation is to be made would not be local. There would be local participation only in determining the manner of making it.

Internal Structure of Large Cities

Our applications have been made to state school systems. But many of our findings have implications for the internal structure of large cities. While our studies show an increase of adaptability with size, our largest communities had a population of only 100,000. As we have noted elsewhere, there are straws in the wind indicating that there comes a point of diminishing return in adaptability in the upper reaches of the size scale. New York, Boston, Chicago, Philadelphia, and St. Louis appear to have yielded to smaller communities the place of leadership in invention and early introduction of adaptations.

Our largest cities have many of the characteristics of such centralized state systems as the provinces of the Union of South Africa, pre-war France, and our own state of Delaware. Much of the argument applied to the rehabilitation of local initiative in states can

therefore be applied to the communities within these large cities. Ebey's study of St. Louis⁶ showed that the superintendent's office was operating largely on an inspectorial basis. Cillié's study of communities in New York City and neighboring communities⁷ showed that the functions described in our check list, *A Guide for Self-Appraisal of School Systems*,⁷ which prospered under the decentralized control of the Westchester and Nassau communities, exceeded in number those which prospered in New York City communities under the state-like centralization of the New York City administrative organization.

It is clear from these considerations that we have tended to look upon the large city as in the same pattern with the small community rather than as a type of state system. Viewing large cities as states may lead to important administrative inventions which will restore to the communities or neighborhoods of large cities some of the advantages of local initiative. This, in turn, may be expected to contribute to the adaptability of the schools.

It is the belief of the authors that large cities have kept too much to themselves in recent years and that as a result American education has not reaped the rich harvest of invention and early introduction that we should expect from the expenditure levels on which the large cities typically operate.

The problem is in a sense simplified for large cities by the fact that central control has been accepted as meeting the demands of the principle of democracy. For a state we might conclude that not all districts need to be free to assure adaptability, but there would still be demands for widespread local control arising from the democracy principle. In the case of the large cities the only issue that has to be faced, according to present understandings at least, is freeing enough of local initiative to promote invention and early introduction.

Personnel Requirements

A long history of state-mandated minimum requirements for the training of teachers probably has been justified because of the danger

⁶ Ebey, George W., *Adaptability Among the Elementary Schools of An American City*, 1940.

⁷ Cillié, Francois S., *Centralization or Decentralization?* 1940.

⁷ *Op. cit.*

of local initiative falling down at this vital point. We might argue that if adequate expenditures were made available, local initiative could be trusted to obtain adequately trained teachers. This may well be the answer when we have attained local district organization that is otherwise adequate for the exercise of local initiative. In the meantime, however, there seems to be no great handicap involved in setting up minimum requirements to checkmate the tendency of board members and others in our local units toward non-educational objectives in the selection and employment of professional personnel.⁸

MINIMUM TRAINING

A close relationship to adaptability was found in our measure of the level of training of teachers. This measure bears a complementary relationship to expenditure. A third item, closely associated with training, is the score of teachers on the poll of opinion, "What Should Our Schools Do?"—a measure of both attitude and professional understanding.

Even more important than requirements for the training of teachers are requirements for certification of superintendents of schools. In addition to training in the methods of performing the tasks that devolve upon the community as the impedimenta of local initiative (accounting, budgeting, reporting, employing teachers, hiring janitors and bus drivers), the superintendent should have thorough knowledge of education as it *is* and as it *should be* and skill in those matters that lead to a better understanding of teachers as persons. The superintendent should have such a mastery of his trade that he can do easily an able job. But he should also have a sufficient understanding of the task of adaptation, the *sine qua non* of effective local initiative, to keep him from overemphasizing his administrative chores.

While certification requirements cannot guarantee men with the

⁸ Similarly, there is need to consider the questions of tenure and retirement, of state salary schedules, and of certification of superintendents. On these items our study in Pennsylvania throws no light. The Pennsylvania provision for teacher tenure has just recently gone into effect. Whether it adds to adaptability is an important issue but one on which our study yields no information. Similarly, no light was thrown by our study on the minimum state salary schedule.

drive to do, they can secure men with the necessary knowledge. This assurance is of great consequence to the public. A competent school superintendent is of as great consequence to the public as a competent physician. The physician helps keep us alive, but the school superintendent is in the most strategic position in the vast educational mechanism which makes our lives more rich and abundant.

The Control and Service Setting

Thus far this chapter has dealt with the local district as that part of the structure of a state school system which is the actual operating unit. From their observations in Pennsylvania the authors have come to consider it a healthful attitude to look upon all state-wide mechanisms largely as service agencies. The question of control, however, cannot be entirely divorced from the discussion, particularly with reference to the state department of education, the courts, and the legislature.

THE FUNCTION OF THE STATE DEPARTMENT

In this study the field workers were accompanied for a period by a very able recent graduate of the Ecole Normale Supérieure, who at the time was working with the post-doctoral group of the Advanced School of Education at Teachers College, Columbia University. In a field work conference following this period he asked: "Doesn't the state government take any interest in education?" The field workers, with the fine education building at Harrisburg in mind, answered that it does a great deal. "Why then," said he, "was no reference made to state government officials by any teacher or other person interviewed in my presence this week?" This was a startling observation inasmuch as the chief purpose of the interviews was to discover who had participated in the adoption of the nine adaptations being studied. We had no answer.

What idea he carried away we do not know. But his challenge remained. It eventually resulted in the realization that state educational officers were mainly concerned with the maintenance and oiling of the educational structure. They certified teachers, they set minimum training standards, they computed state aid and gave orders for its distribution, they collected educational statistics, they

occasionally became concerned with changes in legislation affecting finance, tenure of teachers, or district organization. They had but little time to be concerned with the spread of specific adaptations.

Looking over the past history it is clear that these important functions have always been dominant. Even in the turbulent early 20's, State Superintendent Finegan was working mainly on teacher certification, finance, and district organization—structural design. He brought in specialists whose influence is noted on our growth curves, particularly on reorganized high schools. But his influence came mostly through structural change rather than through work in specific adaptations. When specific adaptations were affected, they were generally adaptations well under way—reorganized high schools, home economics, industrial education, agricultural education, and so forth.

Examining the titles of the Education Department staff for 1936, we find 53 officers and 20 boards, distributed as follows:

- 19 are concerned with matters of state-wide concern, controlled and operated by the state (museum, licensing nurses, pharmacists, moving picture censorship, etc.);
- 30 are concerned with the maintenance of the educational structure itself (state aid, certification, retirement);
- 15 are educational officers allocated to highly specific phases of the educational system (special education, art, music, etc.) and not likely to be concerned with adaptation outside these specific fields; and
- 9 presumably have wide functional influence including the areas in which the vast majority of new adaptations would fall (the superintendent of public instruction, elementary education, secondary education, curriculum construction, etc.). These nine include the state superintendent and his deputy and the state council of education all of whom are concerned with a wide range of problems.

Thinking again of the educational building in Harrisburg, we can roughly assign a fourth of it to the state government's own more or less educational concern, most of which, with the possible exception of the state museum, can be viewed as outside what we think of as the school system. Another 40 per cent goes to keeping the general mechanism in operation quite regardless of the grist it grinds. The remaining third may be regarded as helping in the

when many of its functions are unrelated to the schools. It does serve the school system by acting as an advisory body to the legislature regarding structural design, on the one hand, and as an auditing body for prudential standards which the legislature has established, on the other. In a limited sense it is a standard-making body with respect to structural matters and a service agency to local districts in such matters as teacher certification and state aid. If it gets in a few licks on the actual operation of the schools, it does it by stepping somewhat out of character. But when it does this it has no authority except that which comes from the halo that surrounds it as a mysterious complex agency housed in a fine building in the state capital.

We have drawn Figure 26 in line with this conception.

There is need for the state department of education to give more attention to the invention and early introduction stages of adaptation. This point is largely one of administrative procedure and is discussed in detail in Chapter XVIII. It can contribute in the area by avoiding the creation of barriers; for example, a system of pre-auditing machinery or post-audits that go into detail on the objects of expenditure. Audits should be limited to honesty audits—checking expenditures made against expenditures duly authorized by the approved budgetary procedure. In pre-audits and object expenditure audits we have two of the greatest deterrents to invention and early introduction.

THE STATE BOARD OF EDUCATION

In the light of the functions to be performed by state departments of education, we should be able to see the state board of education more clearly. Most of the leaders in structural organization of school systems have promoted the idea that the state board is a sort of glorified local board. Accordingly, neither its functions nor the manner of selecting its members has been properly planned. The conceptual pattern accepted as the basis for this chapter sets the state department as a prudential agent of all the people and a service agent to local school districts. From this, prudential control and the promotion of adaptation become the functions of the state board.

The state board of education has no broad fiscal powers comparable to those of the local board. The state government's fiscal

powers are in the hands of the legislature. Where attempts have been made to delegate them to state boards of education, the boards have refused to exercise them.⁹ The state board is therefore almost entirely an educational body. Like the remnants of local boards in the Cape Province of South Africa, New York City and most of the existent local boards in Delaware, it must work within a financial framework established by other agencies. It may propose financial policies but it cannot act on them. Its job is strictly an educational one.

From this discussion it is clear that a state board of education does not need to have treasury watchdogs on it. Rather, it should be made up of laymen who have the interest, background, and ability to act as an educational body dealing with policies of leadership. Since a large part of its responsibility should be to help local school districts, its members should have an understanding of local problems and an understanding of the conceptual framework in which they operate. To safeguard this, state board members should be chosen from among the ablest local school board members, from among those who have gone through a long course of training under able local superintendents. They might be selected from a list on which a committee of the state school board association and a committee of superintendents can agree—a list of master school board members. Since they have few, if any fiscal powers, the question of election by the public need not arise. With the following qualifications assured they may be appointed by the governor for overlapping terms with the advice and approval of the state senate. So that they will not lose touch with the problems on which they are to be of assistance, their service on the state board might well be made contingent upon their continuation as local board members.

For breadth of point of view, the state board of education should have the power to appoint advisory groups from various segments of the population and to co-opt representatives from such advisory groups to sit with them in their deliberations. The state board should be such as to gain acceptance as the rallying center for those citizens who see clearly the important part that education

⁹ Staff Study Number 5 of the Advisory Committee on Education, *op. cit.*, pp. 77-80.

has to play in realizing the full potentialities of a democratic way of life.

THE STATE DEPARTMENT AND THE LOCAL UNIT

We have noted that where state departments of education have served the adaptation function at all, they have served mainly in the realm of diffusion. They have played an infinitesimal part, so far as we have been able to find, in the discovery of need and invention of solutions. We have seen also how the inspectorial function, together with mandatory legislation and state department regulation, while in some instances speeding up, or, perhaps better, mopping up diffusion, readily becomes rigidly prudential in purpose and may stand in the way of further adaptation. Furthermore, the inspectorial function of state departments makes it difficult to establish the leader-follower relationship which encourages inventiveness and steps up diffusion in areas not subject to state fiat.

One can readily see the opportunity for a state department of education to become aware earlier of new adaptations—in other states and in individual communities—and to disseminate them. It would seem wise for the state to avoid endorsement of innovations, if this is necessary to keep from too fine a sifting through the conceptual patterns of state leaders. The publication of a bulletin of ideas, inviting discussion and comment, would be helpful, as well as provision for dispassionate appraisals of those which seem far-reaching in their implications.

The practice of appointing specialists to work permanently within particular narrow fields, such as supervision of English or vocational education, would seem to be open to question. It is a symptom of the restricted program state offices have tended to adopt, the emphasis on a few spots in the program to the neglect of most of it. It would be wiser to have able persons with a wider range of outlook who could be shifted from field to field, entering an area to be developed in an early stage of diffusion and passing to another after the first has reached the point where central encouragement is no longer needed. These persons would be general leaders with emphasis on particular aspects of the program, rather than specialists.

The most critical time in a given adaptation is that when the diffu-

sion map is spotted. Attention should be centered on developing new nuclei over the state, and on the dissemination of knowledge concerning the adaptation. Diffusion could then be allowed to take its course, with occasional checkups on its progress. The state department should also encourage more first introduction of practices from other states. In our experience in Pennsylvania we found no adaptations which had their beginnings within the State. On this phase of the work the discussion in Chapter XIX should prove helpful.

THE COURTS

In extending the scope of the powers of local school districts, the courts have played an important role. Witness as a dramatic example the Kalamazoo case wherein the courts approved the inclusion of tax-supported high schools and the employment of school superintendents within the meaning of the constitutional provisions for common schools.¹⁰

The courts are a powerful phase of the structural design of education; through them our organic laws are interpreted. Since they may act to restrict as well as to expand, the importance of understanding their mode of operation and the breadth of their freedom of action is highly important. They can set aside or re-interpret action of state legislative agencies. In doing this they follow no set rules but are motivated by what appears to them the best for the state and the individual citizen. In making a decision, they seem to be limited only by their ingenuity in rationalizing the course of action they consider appropriate. The rationalization is frequently in terms of precedents, but it is not necessarily in terms of the weight of *all* precedents. It may be in terms of the particular precedents that support the action that appears best in light of current conditions.

¹⁰ The school board of Kalamazoo decided to establish a high school and levied a tax to support it. Stuart, a citizen, brought suit to prevent the collection of the tax alleging that under the constitution of Michigan which provided for a system of "common schools," the state and its agencies were without power to establish and support high schools. The decision, which declares the school board to have the right has been widely followed and the same manner of reasoning now has been employed to maintain the power of the state to support all levels of education from the nursery school through the university. The eminent Chief Justice Thomas M. Cooley wrote the opinion. (*Stuart v. School District No. 1 of Kalamazoo*, 30 Mich. 69, Supreme Court of Michigan, 1874.)

The courts should not be confused with the legal and quasi-judicial services of the state department of education. This is instituted to settle minor quarrels as to legal meanings and to reassure the local school official as to his powers. In a sense it serves as a sort of pre-audit for action. As such it may, in the hands of a legal hairsplitter, become a retarding influence on invention and early introduction. One doubts the inclination of any central official to take the responsibility for approving something entirely new. Would high schools have been introduced in Kalamazoo if the local officials had sought the approval of the state superintendent? We doubt it. But perhaps inventors are not "runners-to-authority." Judging from the fact that all adaptations thus far studied were well along in the introductory period before permissive legislation was passed, we can see that state legal service, like permissive legislation, can be helpful in reassuring the timid on those adaptations which are already sufficiently diffused to make it "safe" for the central officer to give them his blessing. Naturally, the fewer timid souls who ask, the easier it will be for the central officer to "stick his neck out."

It should be remembered that a new movement must look very good before a state officer will sanction it, if he is asked in his official capacity, but it has to look very bad to him before he will take the initiative to interfere with local action unless he is petitioned to do so. The wise initiator, knowing this, avoids seeking official sanction. He knows that if the practice proves as good as he believes it is, it will probably not be questioned, but that if it is questioned he still has the chance that a friendly court will declare the action legal.

TEACHER EDUCATION INSTITUTIONS

There is no evidence in our study that state teachers colleges and other state institutions for training teachers are concerned greatly with changing the schools, although a bulletin published in October, 1936, states that much has been attempted in recent years, and refers as follows to the relationship of the state department and the teacher education agencies:

The close relationship between Teacher Education and Certification and the Instruction Program of Pennsylvania is evident from the fact that the State Teachers Colleges supply the schools through-

out the State with many of their instructors. These inexperienced teachers are to some degree dependent upon several agencies for their professional growth, one of the major agencies being the Bureau of Instruction. A major responsibility of this Bureau is to improve instruction, and it is therefore directly concerned with the preparation of the administrators and teachers who enter the profession.

In view of this relationship, it is believed that the educational aims and philosophy of the graduates from teachers colleges should be closely akin to the aims and philosophy of the Bureau of Instruction. Furthermore, the teaching practices advocated and demonstrated at the teachers colleges and those proposed by the Bureau of Instruction should be consistent with those educational aims and principles agreed upon by both. The development of an educational philosophy and of educational aims, and the application of teaching practices consistent with both, are a cooperative responsibility. To the extent that the Bureau of Instruction and the teachers colleges reach a common agreement on these matters will there be a progressive advance in the growth of the public schools of the Commonwealth.¹¹

As for effects on practice in our field work, the colleges seem to be more accurately characterized as a sort of storage battery manufacturing plant, building up the general potential of teachers to the level demanded by state officers on the one hand, and by local employing officers on the other. Their products, entering a school, are faced with the urge to conform to the local pattern. Perhaps the better their training, the more fully can they adapt themselves to local conditions. But failure to find teachers from one institution influencing adaptability more than those from any other institution seems to indicate that teachers do not enter the profession with great enough will to modernize the schools to overcome lack of initiative when it is found in the administrative staff with which they serve. Perhaps the truest picture of the function of the teacher-training institution is the preparation of teachers able to "take on" the local color. This, as we have noted, is considered by teachers an important rule for success and is one which is related, interestingly enough, to the adaptability of the school system.

Considering the fact that schools with teachers drawn from many

¹¹ *The Program*, p. 23, Department of Public Instruction, Commonwealth of Pennsylvania, Harrisburg, Pennsylvania, October 1936.

institutions, rather than largely from one, are more adaptable, and the further fact that the presence of a few teachers rating high in their understanding of educational needs is more important than possession of a high average in the whole staff, it would seem wiser to maintain a freedom in teacher-training institutions which would occasionally produce outstanding teachers than to seek to attain a uniform policy in all, particularly if the local employment policy favors representation from many institutions. To follow the policy of trying to make "the educational aims and philosophy of the graduates from teachers colleges . . . closely akin to the aims and philosophy of the Bureau of Instruction" is as likely to make for conservatism as for adaptability.

Doubtless the primary function of teacher-training institutions is the education of teachers. The task seems a discouraging one when it is realized that these teachers must go into all kinds of local situations and accept the pattern that the community and the educational authorities have consciously or unconsciously imposed. Perhaps there is a source of satisfaction in the realization that individual teachers can break away from the set pattern and in the realization that more and more communities want teachers of children rather than purveyors of subject matter. If we are to hope for more teacher initiative, it would seem to be essential that all teachers have a better understanding of the development of children than they get from typical training courses; that they have a more workable philosophy than they obtain from a general consideration of philosophies of education in the past; and that they know something about life outside the school other than that which they have picked up in their home contacts. This last is the most difficult to provide, for most teachers college students have spent most of their waking hours since the age of six either in school or in their immediate home environment. Their stereotypes of life outside and of its problems are probably no more limited in scope than those of other citizens, but they are far too limited for the guidance of youth.

We have already noted that teachers who are thus qualified may also be well equipped with healthy skepticism regarding the values of traditional practices which still dominate our schools. This skepticism, combined with the desire to make changes where the reason

for the changes is well understood, can perhaps be inculcated by the teachers colleges. Along with this healthy skepticism, the teachers college should bring to the teachers an understanding of those forward steps which are now accepted in practice in the best schools without question but which have not yet made their appearance in the vast majority of schools. Also, they should make the recruits to the profession more acutely aware of the dead practices that pervade the average school system.

In the past teachers have certainly not entered the profession with a realization of the detailed nature of that lag behind proven best practice which our studies have shown to be characteristic of American schools. That practicing teachers have not achieved an understanding of the detailed nature of this lag was also revealed by our studies. We have conjectured elsewhere that this is due to emphasis on the new on the part of institutions of nation-wide influence and the tendency for local institutions to follow in their footsteps. There certainly can be no objection to institutions which deal with the frontiers of educational thought and practice. This may be the most useful function of the institutions that draw from wide areas. But there can be no excuse for the failure of institutions, set up in the framework of the state educational system, to drive home an understanding of those areas in which school systems in general are lagging.

In summary, then, the primary function of the state teachers college would seem to be to train teachers to respond to opportunities in local communities, to become teachers of children rather than solely teachers of subject matter, to become aware of the nature of the lag in educational practice, and to acquire a healthy skepticism with respect to the invulnerability of present practice. When state teachers colleges and state university schools of education have performed the above functions, they will have advanced far in improving the adaptability of public school systems.

In Pennsylvania, however, we saw indications of another type of service which might be developed and expanded in coordination with the activities of the state department of education. Teachers colleges in most states are regional in character. In some states they actually play a part in the inspectorial and supervisory service in the

state department of education. They might well become the spearheads of a concerted attempt to raise the level of understanding on the part of school boards, superintendents, teachers, and the public in their areas. Certainly they could do a great deal with conferences. They could seek out school districts in which various phases of the program in which there is a lag could be introduced. They could see to it that opportunities for diffusing knowledge concerning these adaptations were provided.

We have noted that the period of early introduction is the longest and most difficult of the four periods and one in which state departments of education have played a lesser part. Why then should not state teachers colleges, which are close to the school district, be utilized to encourage introduction and more rapid diffusion in their areas?

We have already suggested that state departments of education should see to it that each adaptation that should be made is represented, so far as possible, in one or more school systems in each section of the state. Let the state department and the teachers college cooperate in getting these introductions. Let the state move to other phases of the task and let the teachers college itself carry on a large part of the responsibility for later diffusion within the area. There are doubtless many examples of this kind of service in the United States. The writers, however, know of no case where state departments of education and teachers colleges, with a clear realization of the tremendous lag of the schools, the tardiness with which introductions of adaptations are made, and the slow rate with which they spread, have undertaken to speed up introduction, to shorten the period of early diffusion, and to stimulate natural diffusion in the later stages of the process. Doubtless what we have seen from the standpoint of the state as a whole could be applied to the areas that serve teachers colleges. This is certainly suggested when we look at the regional maps and the diffusion of our nine adaptations in Pennsylvania.

Keeping Prudential Legislation Within Bounds

Freedom of local districts to act is freedom to act unwisely as well as wisely. Unwise acts on the part of local school districts, or what

appear to be unwise acts, frequently result in strong drives to pass restrictive legislation or restrictive regulation by the state board of education or the state department of education. We have seen over a period of years the gradual increase of mandatory legislation prescribing the curriculum. More recently we have seen a mounting tide of legislation restricting the powers of school districts to tax on the one hand and to decide on the objects of expenditure on the other. All such prudential legislation must be looked upon with a critical eye; for while restrictions may save local initiative from error, they may also deny it the freedom so essential to constructive steps in line with the adaptability principle.

The weight of our observations seems to bear out the hypothesis, quite generally held among educators, that, particularly in the high school, mandatory curriculum legislation is restrictive and tends to retard adaptability. But we have no statistical evidence to support these observations.

We have already mentioned the danger of over-auditing. Two other structural devices that are obviously restrictive on adaptability are tax limitations and budgetary review (pre-audits). Our Pennsylvania study threw no additional light on these structural elements. But the danger to adaptability that lurks in these devices prompts us to supplement this treatment by listing them along with the other structural elements that have been treated.

Thus far Pennsylvania has been reasonably free from these instances of prudence carried to its logical conclusion without consideration of other principles. But a state aid law amendment passed in 1935 was an example of the overstepping of prudence. It required local districts to reduce local taxes by the amount of the aid received. Happily this provision is not carried out in practice.

Operation of Adaptation Processes

WHILE the slow process of improvement in structure goes forward, we daily have the task of making the most of what we have. Perhaps the most encouraging single observation in our study was that the school with the highest rating had all the socio-economic and professional cards stacked against it. It would be easy to say that this was due to the chance events which led to the employment of an unusually dynamic superintendent in this community. But back of him was the small community group that went out to find him. Furthermore, his efforts would have been futile if the teaching staff had not responded to his leadership—if they had not had the capacity to respond or if they had lacked the emotional characteristics which responded to leadership and which drove them on to achievement.

Let us be reminded also of the remarkable instance of one teacher who remade a school system in order to achieve the adaptation on which his heart was set, or of the many instances of public groups who succeeded in obtaining enough community support to carry forward a change with little more than the tacit consent of the professional group. For adaptability at least these instances are far more important than the observation that some communities fell below their expectancy. They suggest that with proper regard for responsive factors we may hope that any situation, however good or bad, can be led to exceed expectancy.

In this chapter we shall deal with the local process of adaptation from these four vantage points—the administrative staff, the teaching staff, the local board of education, and the public.

The Superintendent of Schools

In practice the superintendent of schools is the chief adapting agent. It is he who must be alert to needs and aware of good professional practices. It is his responsibility to see that the understanding of the public, of the teaching staff, and of the school board is kept abreast of the times. He must know and must have estab-

lished the kind of administrative organization that will give prudent management and, at the same time, favor adaptability.

First he must realize that an indispensable function of his job is to keep the schools running in accordance with best knowledge and practice. Without such realization, he can easily become immersed in the routine job of an uninspired administration—doing tasks that would otherwise be done almost as well by members of the school board, or by clerks. It is not at all unusual to find superintendents interested in their filing cabinets or their accounting systems or the detailed tasks of school-building construction to the exclusion of the needs of children and community. We must not overlook, however, the importance of these routine tasks. One of the prices to be paid for local initiative is the necessity of keeping accounts, employing teachers, devising budgets, developing building programs, and a thousand other things which would not need to be done at all if the system were state-operated.

In one of the studies preliminary to the present investigation, the senior author visited some fifty schools in various parts of South Africa, where schools are state-operated. He was struck by the fact that most of the administrative items in a rudimentary form of "The Guide for Self-Appraisal of School Systems" had no meaning whatever when applied to these schools. There was no local budget, no local accounting, no local selection of teachers, no difficult decision to make on class size, no decision to make on basic supplies. All of these decisions were made at the provincial capital.

Obviously these are the concomitants of local initiative. In our system they need to be cared for, but they are not the major reason for *maintaining* local initiative. If local initiative is to function, the superintendent must indeed care for these matters. But he must wring from each its contribution to adaptability. His building program, for example, bristles with opportunities to improve the educational opportunities. His budget-making procedure may be made the focus of the best thinking of the profession and the community on the educational program.

It should go without saying that the superintendent should not seek to bring about changes only because they appeal to him personally. Our findings on the relationship to adaptability of pro-

fessional and community attitudes and the cultural level of the community place a high value on administration that utilizes the cooperation both of his professional colleagues and of the public in the formulation of policy. To his own appraisal of the need for change, the superintendent must add the best that the professional staff and the members of the community can contribute. Through such mutual sharing, he should make his program one in which he has professional staff and community concurrence—concurrence of the professional staff because it helps to make the change worth while, community concurrence because the community is the true agent of the people of the state.

In dealing with the community we must realize that low cultural status is a handicap and high cultural status a favorable element. Our evidence suggests at least that adaptability may be improved by improving the understanding of the public as to what education is all about and how it may be improved. Most citizens think of the schools in terms of outworn or over-restricted stereotypes. Our study shows that a comparatively small number of unusually alert citizens may influence school policy out of all proportion to their number. By careful selection of citizens to engage in first-line participation, education of the public can be made to count long before the great mass of the public is reached.

The better showing of the composite community over the community of less complete social organization, when taken together with the influence of the super-community of which the school district is a part, suggests lines of attack. On the chance that the superiority may be due to the interplay of a variety of minds and experiences, efforts may well be made to provide opportunities for intellectual interchange within the community and with neighboring communities.

The superintendent should also not hesitate to seek out groups who might be interested in sponsoring and even supporting for a time some needed new activity. Throughout our history such private initiative has been a large contributor to progress. We can ill afford to neglect it now.

We should realize that the potentialities of the professional group are influenced by demands of conformity to the community pattern.

As a result, all teachers may be viewed as being alike except the few who are emotionally or socially out of step and the few who are simply "too outspoken." As a matter of fact the study of the interests and drives of an extensive group of teachers reveals a large number of potential leaders in most communities.

Good superintendents have always been on the alert for the occasional bright idea—to reward its creation, to diffuse it through the schools. Some, by no means enough, are conscious of the need for seeing teachers as persons. Teachers with the least training are generally far broader in interest and capacity to adapt than is usually credited them. It is all too easy to think of a teacher's interests as circumscribed by the bounds of the subject or grade he teaches. For a superintendent to encourage teacher recognition of need for change, to seek practices that appear irregular even though they do not fit the conceptual pattern of administrator or supervisor, is to encourage creation at the very point at which local initiative is supposed to contribute most. The superintendent who serves a community that has schools unusually well financed and therefore has conditions favorable to the recognition of need has a particularly strong responsibility to encourage experimentation by classroom teachers and supervisory officers.

Sometimes the interpretation of *responsibility* stands in the way. Frequently superintendents are found who are jealous of their prerogatives of responsibility. They say "my teachers," "my schools." They do not let teachers forget that they (the superintendents) are responsible to the board. They resent a show of responsibility or interest on the part of parent groups and teacher groups. The authors believe that this notion of responsibility is purely prudential in nature. As such it is at times indispensable. But it should be kept in the background for use at critical times, not trotted out on every occasion. Adaptable schools are created by people working together, not worrying about authority—although, of course, not forgetting it—but alert to the opportunity to serve. In this sense he who has that rare human product, an idea, has the responsibility. When an idea emerges it is the moral responsibility for all hands, including the superintendent, to make way. In the vast majority of the acts that constitute the day-by-day operation of a school, the questions,

"Whose responsibility is it?" and "Who will get the credit?" are deadening. The adaptable superintendent is a generous sharer of responsibility and honor.

It is time that we look for a solution to some of our problems of educational advancement in plans which will take teachers in on the ground floor in a way which will enable us more fully to utilize the haphazardly guided and supervised, and professionally uninspired but infinitely rich human resources now engaged in public education.

Not the least of the superintendent's task is to raise the teaching staff's level of understanding of educational knowledge and best practice. Without some sort of stimulus, teachers, as other persons, fall behind. Our findings show that Pennsylvania teachers were not more superior to the general public on matters of educational knowledge than on matters still in the realm of opinion. It seems to us that this is inexcusable.

ADMINISTRATION AND TEACHING PERSONNEL

The ultimate success of the school program depends in great part upon the professional fiber of the local teaching staff. It may be said, of course, that without proper financial support, proper professional administrative leadership, favorable local community circumstances, or some ameliorative extra-local influence, the quality of the staff will not be reflected in the type of progress anticipated. In our most progressive school systems, however, leaders look upon the teaching staff as the heart of the undertaking, the very stuff of which educational reform is made.

In the selection of teachers, effort should be made to add to the staff a goodly number of those who rank high in educational training and alertness to needs. Such teachers, though few in any given staff, have more value in bringing about adaptation than the great mass of others with but average potentialities. The policy of obtaining large numbers of teachers from a single institution should be avoided. Variety of personal and professional characteristics is desirable.

There are one or two conclusions of this study which indicate that many fallacies are abroad regarding the professional worker. These

are especially to be noted when he is viewed from the standpoint of adaptability. It has been shown above that the composite of selective factors in the community influences the point of view of the teacher more than does the college in which he was educated. Outside of the handful of institutions which may "make a difference" with the teacher, it appears to be a toss-up which one of the institutions he attends.

Another prevalent misconception relates to the age of teachers. Administrative decisions are often made under the false impression that the older teachers are, as a rule, out-of-date and unprogressive in their ideas. In other communities it is believed that younger teachers, whose professional training has been more recent, are well informed on recent advances and trends in education and are more receptive to educational change. Neither of these beliefs has been substantiated in this study. Many factors of administrative support and leadership discussed in this study and the proper combination of them in a given local community may completely overshadow slight advantages or disadvantages in age of teachers, training of teachers, number of years' experience, and the like.

There is one way in which local administrative officers, superintendents, principals, and others may contribute to adaptability without assuming the role of direct initiation. This is by introducing sufficient flexibility into the administrative organization to make it easy for the teaching staff to carry through the introduction of a change before enthusiasm dies.

The slogans of good administration are "efficiency" and "planning." It is unfortunate that these criteria of administration work contrary to the criterion of adaptability in the local school system. This may best be illustrated by ways in which planning of the budget might handicap the fruition of a new idea. In Community X a teacher had a plan for the development of a social science laboratory approach to her teaching of ninth grade civics. Her program involved replacement of old-type desks with tables, it called for new equipment, such as files and bookshelves, and new materials for the preparation of charts and exhibits. Unfortunately, the keenest interest in the change came after the budget planning period. In this particular school system the budget is prepared a year in advance.

This, of course, is in accord with good budgetary practice, but the attitude had been firmly established that the budget is inviolable and that under no circumstances could additional books and supplies be provided. No machinery was in operation temporarily to tide over with old discarded or inexpensive furniture which might have been supplied for the purpose without violence to the budget. The administration had taken the attitude that the teacher herself had not properly planned in line with the system and therefore had no reason to expect an adjustment to the situation.

In a number of the more adaptable communities administration was much more flexibly organized. In one school district the "modern program" was being introduced just as rapidly as the "teachers and the public would take it." Bit by bit school furniture, textbooks, and other materials and equipment were being changed over, a classroom or a school building at a time. During the old subject matter regime, textbooks had been uniform throughout the fifteen or twenty elementary school buildings. At the time of our field work, textbook committees had been organized and budgetary planning was proceeding but without definite commitments as to the books to be purchased. By this means adjustments in textbooks were made as the program was developed. Under the first year of this plan there was an unexpended balance. This might be viewed by some as good economy or by others as poor budgeting, but operationally it contributed to adaptability.

FLEXIBILITY AND EFFICIENCY IN ADMINISTRATION

From this experience a principle has emerged—namely, that demands of "efficiency" and adaptability are not necessarily incompatible. To a very great extent the latter is an important medium through which the former may function. In too many schools efficiency, in the sense of excellent systematization, business-like budgeting (that is to say, knowing well in advance just how much is to be spent and for what it is to be spent), many records properly filed, tabbed, and classified, is viewed apart from any consideration of their educational consequences.

But is not the machinery of control the very foundation of education? We are coming, in the profession, to realize that the answer

is negative; that these administrative trappings are essential, useful, and important as means of exercising the managerial or wardenship responsibilities of our tasks, the better to get down to business in other ways. Our custodial expedients are the scaffolding, not the structure. Only as the control and adaptability functions of administration develop in most intimate conjunction is administration offering the type of constructive leadership which we now expect of it. In theory the budget is an adjustment of income and expenditure to the educational program at the base. The first step in the budget, as has long been conceded, is review and appraisal of the educational program. This step in any school system would turn up enough uncertainties and contingencies in the educational plan for a budget to leave the door wide open for flexibility and adaptation. Some of the findings of this study certainly provide arguments and sufficient supporting evidence for the leeway items or experiment funds in the budget. Most budgets are not developed in this way.

Some confusion might arise in the mind of the reader with respect to our emphasis upon the inadvisability of concentrating administration upon the externa of the responsibilities of leadership. It need not follow that administration, from the standpoint of adaptability, is unimportant. This is decidedly not the point of view taken by the authors. On the contrary, the pitifully inadequate training of administrative leaders in some of the less economically favored communities convincingly demonstrated to us the need for very thorough preparation of principals and superintendents on these external matters. The administrator must be the master of system in order to deal better and more efficiently with routine matters and thus free himself to turn his attention to the educational program. It is the poorly trained administrator who becomes a servant of systematization. The well-trained administrator is a master of his stock in trade and is able to make the paraphernalia subservient to the many constructive ends the sum total of which will represent greater adaptability for the school district. Almost paradoxically, therefore, we might expect the administrator who devotes proportionately the least of his time to administrative externa and who makes greatest advances in his educational program to be the one who also operates the administrative machinery most efficiently.

The above discussion should not be taken as an argument against strong administrative leadership. It deals rather with a *method* of strong leadership. Thoroughgoing local programs of change must depend very largely upon masterful leadership and administrative strategy. It is a challenging thought how far the drab unresponsiveness of our vast majority of educational systems might be changed with a more widespread distribution of the rare types of professional zeal and administrative ingenuity plus breadth of scholarship found in superintendents and principals in the most adaptable communities.

TECHNIQUES OF ADMINISTRATIVE LEADERSHIP

In reviewing the records of administrative influence upon specific adaptations one cannot help but feel that the sampling from which to draw outstanding illustrations of practice is limited. Our inferences as to local techniques of administration for adaptability must necessarily be somewhat scant. In only two of the forty-eight communities visited had there been approaches to professional study, conferences, demonstrations, seminars, and the like which attempted to strike at the base of problems as good practice would indicate. In both cases it was recognized that the first step in an overhauling of the school system would be a cooperative development of a working philosophy. In both cases the intellectual leadership for this phase of the work was provided by the superintendent by engaging consultants from universities.

Many types of administrative technique, suggested in the study by Ebey,¹ were also encountered in the present study. There are no apparent grounds as yet for determining the relative effectiveness of these devices. For example, it is not known whether it is best to start a program simply with key teachers, a rather common device, or to pit the key teachers against the reactionaries in democratically organized discussion groups and conferences for purposes of working along with the entire group of teachers concerned with the innovation. The latter plan has the advantage of reaching the greatest number of people in the shortest time and avoiding the resentment which some teachers will feel in being left out of it. Working only

¹ Ebey, George. *Op. cit.*

at first with key teachers, on the other hand, has the advantage of greater assurance of the program's working well in its initial stages.

If change is too sudden it is believed to be highly subject to failure within the professional ranks themselves. An analogy might be drawn with a biological organism, which can take doses of change in temperature or atmospheric pressure in environment if such doses are increased gradually so that the organism has *opportunity to adapt*.

Such a theory has found support in the experience of many leaders and no doubt reasonableness and good tact often dictate adherence to it. Too often, however, we resort to the "spearhead" approach or the "key teachers" approach, not because we are treading on untried ground or because we need to experiment, but because we have not found it possible to lay out the blueprint for the complete program well enough to avoid shock.

Certainly when the administrative handicap "improperly trained teachers" is referred to as limiting the program of the local superintendent, we usually feel that this charge is just. It is a simple truth that the extent to which a leader may expect to elevate the powers of his group is limited by the abilities of members of that group. This is a universal problem. We raise here the question: Through what perspective are we to view this problem as it bears upon administrative leadership? In seeking an answer to this question we must agree that a great deal of the intellectual stagnation in the profession could have been avoided by a different type of administration. We must remember that educational administration is a more recent profession than teaching. Just as there are many administrative officers in the older sections of the United States whose training was received before the era of modern administrative theory, so there are many teachers now in service who were trained and who taught before administration had begun to raise itself from the level of clerkship.

It might well be that in parts of the country which were settled earliest, the chief obstacles to progress are the stability of the teaching staffs, the low rate of turnover, the slight, if any, community growth and educational expansion, and the large number of superannuated teachers. These seem to be relatively unalterable circum-

stances in view of best principles of personnel administration. As administrators we may become discouraged by the handicaps of our communities in financial support or unfavorable social and economic circumstances, or by the new restrictions which tenure, for example, has placed upon them. But like it or not, we must come to accept security and the general amelioration of professional working conditions as an axiom from which all other constructive thinking must follow.

We must recognize that the professional lethargy to which administrators refer is in no small measure a product of the regimentation, the unfavorable working conditions, the limited opportunities for personal and professional adjustment, and the injustices and undemocratic practices which teachers in the past have had to endure. This is all so much water over the dam. We should perhaps realize that the very professional workers toward whom our displeasure is directed might well be judged martyrs to the cause of pioneering in an American educational system which is but now reaching full stature. Their inadequacies may be charged as part of the price of creating our system of public education. Any attitude of pessimism toward what may be done with the large numbers of professional workers who have operated for many years under archaic theories in an antiquated system should be cast aside for two reasons. First, such an attitude is an admission of defeat and of our own incompetency as leaders. Second, it is negativistic and does not lead us toward the true potentialities of the vast professional human energies at our command. There are a sufficient number of school districts which have been able, professionally, to pull themselves up by their bootstraps to demonstrate that the task is not impossible.

Highly important is the task of enabling the public to become aware of needs and ways and means of meeting them. Here is a phase of adult education that should be carried on continuously. Women's clubs, luncheon groups, committees of citizens to study specific needs are agencies frequently used to attain this result. Publicity on school activities, annual reports on active work, all methods used should be selected with the purpose in mind of keeping the public sufficiently abreast of the times to choose wisely between taxes and services. Board action for the community should represent

a distillation of best thought built into a working agreement between the public and the professional staff. Communities should be led to select board members who will be able to operate to further the cause of a public service, not simply to protect an interest.

The fact that school children are relatively uninformed and intellectually inactive with reference to educational problems is worthy of special consideration. The schools have been guilty of turning out citizens who know so little about the needs and purposes of education. It should be possible to use children's discussions in the upper grades and high school at least as a means of arousing the interest of parents in educational problems. Here are messengers going to and fro each day. Why shouldn't these boys and girls be more enlightened not only on what the schools are doing but also on what they might do? If the program is carried on in a spirit of seeking a meeting of minds rather than in a spirit of disseminating propaganda, the dangers of misunderstandings should be slight.

Throughout these processes the purpose of local initiative to help in discovering needs, to invent solutions, and to diffuse proved adaptations should be kept in mind. Probably local initiative cannot be justified solely as a condition favorable to the diffusion of accepted practice. The case for it, therefore, turns on recognition and discovery of need, and invention. Diffusion of proved adaptations is in no small degree to be classed with the necessary activities growing out of local initiative itself, such as local accounting. Occasional surveys by outside agencies will help to galvanize a community into action to catch up on proved adaptations. They seldom may be expected to discover authentically new needs; to hope for invention from this source is futile. Discovery of needs and invention of ways to meet them—the most precious fruits sought from local initiative—require a setting in which intimate contact and time are important elements.

From the view of the entire state, the local superintendent should take the responsibility for seeing that diffusion of well-established needed changes is not held up so far as his community is concerned. In addition, he should not hesitate to do his share in introducing adaptations during the slow introductory period when so many stand back to wait for absolute assurance.

Taking into consideration the tendency of adaptations which involve marked departures in practice or philosophy to cluster in certain localities, arrangements may well be made with neighboring superintendents to lead off simultaneously. Thus all gain from the interplay of public thinking in the super-community. As noted earlier, there is evidence that adaptations in one community seem to draw stability from the presence of the same adaptations in near-by communities.

In introducing changes it should be remembered that the public readily gets an exaggerated notion of the cost involved. Present and future additional costs arising from the adaptation, if any, should be made crystal clear. New chapters in financial accounting and administration for public consumption have yet to be written.

Another point to remember is that public opposition is not necessarily a bad sign. Adaptable schools report more community opposition. But citizens with adaptable schools more often point to them with pride.

The superintendent should be able to look to the state department of education for information and friendly encouragement. But he should avoid trying to pass responsibilities on to the remote state department. Furthermore, in entering into a new project he should avoid asking too pointedly whether the action is legal. If he believes that it is a good thing to do, if he has local support, if he can see that it is conceivably within the scope of powers of the community, he should act. To do otherwise is to eliminate from a system of local initiative the experimental margin which it has over centralized control. He must realize that the citizens of the school district are as truly the direct representatives of the state as is a legal adviser in the state office. In judging the legality of educational innovations not clearly mandated by or implied in the law, the courts have frequently been found to stand with the new and little tried, seeing its potentialities better than those who are steeped in the law and practice of the "school system."

We hasten to add that this is in no way an attack on state departments of education. Many, probably most, state officers will doubtless consider that one of their serious problems is the superintendent who tries to get them to make decisions which are functions of local

administration. If they give the decision, they are attacked as dictatorial. If they fail to give it, they are attacked for equivocating. So "runners-to-the-capitol" are not only running out on their own responsibilities, but are also taking up valuable time of central officers.

Outside agencies, state or national, cannot be expected to give much help on their own initiative. They move in a universe quite different from that of the local school system. At the same time there is undoubtedly great potential help in the many activities of these agencies. The present degeneration of the term "pressure group" is keeping many school systems from profiting from important sources of assistance. The part that pressure groups played in such movements as the kindergarten, vocational education, development of special education, and the instilling of the idea of change or progressivism, warrants an attitude of open-mindedness at the very least.

Dynamic superintendents and teachers have an opportunity to influence other communities for the general good through their state professional organizations. In recent years these organizations have provided a very significant channel for state leadership. Their success with state-wide projects of professional interest, which the pressure of the times has brought to the fore in recent years, points to vast possibilities for good in a wider range of educational problems in the future.

Local school systems that hide their light under a bushel are not performing their full function in a system built around local initiative. Far more than has been realized, improvement in the state structure of education awaits the leadership of local administrators. It is they who drive the machine, not state officers. They have the intimate confidence of the people in one community; state officers are far removed from all. Their voice is stronger than they know. At present they make too little use of the rich opportunities about them to make that voice clear and commanding for needed state action.

The Board of Education

What has been said of the responsibility of the superintendent should give orientation to the responsible agents of the public—

the school board. Board members may well see their task as an overwhelming one. School board membership should not be lightly accepted. Board members have the responsibility of becoming conversant with educational issues so that they may serve constructively. If school boards are not alert to the demands for change and do not make considered judgments on them, local initiative fails.

Professional administrative positions were created to free the school board of accumulating administrative tasks, leaving it more time for the consideration of policy. As the tasks of the school grew more complex, it became necessary for the board to have professional leadership. So board members must look to their administrative officers for relief from administrative tasks and for help in acquiring an ever-better understanding of the needs of education and the implications of proposed changes in policy.

The first task of a board of education is to secure a superintendent who can take his routine work in his stride and have time to serve the functions outlined in the preceding section. Not the least of the superintendent's task is working with board members toward better understanding of educational problems. If more than half the time of board meetings is spent on detail, if less than half is spent in vital discussion of educational problems looking to the improvement of the educational program (not necessarily to the increase of its cost), both board and superintendent should revise their methods of work. For if school boards cannot serve as agents of adaptability, local initiative fails. Efficient handling of the routine of local initiative in and of itself will not justify local control.

The Teaching Staff

The large part now played by the superintendent might be considered a weakness if the sum total of progress were not so small. The need for increasing the superintendent's participation is great, but along with it should go the freeing of teachers as initiators of change. For well-trained teachers this is largely a matter of atmosphere. The tendency for teachers to blame the administration or the board or the community for lack of action is in no small degree an assumption that they cannot move without official approval.

To some extent this attitude is fostered by administrative officers, but the writers believe that it is a survival of the pre-superintendent days when a cultural relationship existed between the old-time school board and the teacher. Teachers must be helped to lose this "fear," often existent under the most kindly administrators not aware of its existence and in no way responsible for it.

The key to the situation is not revolt, but realization that those who take the liberty, without running to authority, to do what they consider right are seldom punished and often rewarded. It involves some risk, but the whole system of freedom involves risks, and those who refuse to use freedom deny its fruition.

Helpful in freeing teachers is the realization that they are *persons*. Many teachers are often so set off by administrative machinery from realizing their full value as teachers of boys and girls that they stop growing. Witness the regimentation of departmentalized teaching which tends to make a teacher a sort of a highly specialized purveyor of a small sector of human knowledge rather than a teacher in the full sense of the word. Stories of professional frustration would be less frequent if administrative officers would remember that teachers worthy of employment are enthusiastic for personal growth. Once this point of view gains acceptance, teachers will seek help in developing their ideas. The fine enthusiasm of a summer course will not die in the cold blasts of indifference the first month of the new school year. Teachers will respond to leadership. For with teachers as with others, education, the growth of personal qualities, is itself a way of abundant living.

This should not be a one-sided affair. Teachers should realize more than they do that administrators, too, are persons with enthusiasm, discouragements, and an urge to grow. The process of human understanding operates in both directions.

Where these attitudes are found in a professional staff there is a lack of tension that can be readily sensed—an environment which is a contributor to the mental health of teachers, pupils, and community—a sanctuary from strains and stresses—a good place to be. Where this is true teachers do not fear to go to authority, for they do not go *for* authority, they go for counsel. If small additional funds or materials are required for some cherished project—and it

is often lack of small sums that impedes the enthusiast—the administrator will find them. If it is not in his contingent fund he will have someone to turn to. For he knows that the confidence that the act expresses is infinitely more important than the material or the fund itself. Many an enthusiastic teacher has had his spirits irreparably dampened by an administrator who “proves” to him that some small thing he requests is really not needed.

In a very real sense the teacher is in a most strategic position in this battle for adaptation. If necessity is the mother of invention, our present necessity drives us into the classroom to discover the characteristics of the whole population range and to challenge our educational practices in terms of growth for every boy and girl. We have only begun to adapt to the new conception of having under tutelage *all* the children of all the people. It is just at this point that the central office, whether state or city, tends to fall down because of isolation from the real problems. For the same reason creative thinkers drawn into the university lose touch with reality. They deal in large terms, in philosophies, in administrative schemata. For another reason, the private schools fail to contribute much despite favorable conditions made possible by expenditure at levels five or more times the average public school level. Their clientele is largely limited to those whose needs are set by college and university goals, and their need for adaptation is as nothing compared to the need for adaptation of those coming from the lowest ninety per cent of our economic groups.

Significant adaptation will not come from any cataclysmic change in the mass pattern. Rather, like the changes that have occurred in our high schools since the turn of the century, they will come from discovering and meeting needs of individual boys and girls. The accumulation of such individual adjustments will eventually challenge mass methods and lead to organization for adaptation.

So the teacher needs first to see each child as a complete person—a product of his environment and of his abilities, general and special, as well as of his school experience. If education is in no small part development of each individual, then the wise teacher must first understand where each individual now is and what non-school forces are operating on him.

In addition, the wise teacher needs to have a healthful skepticism of the value of present schooling and an understanding of the world outside. Pre-service or in-service training or good hard individual effort can contribute to the skepticism, to the understanding of the psychological and physical growth of humans and of the skills of the teaching trade—his tools. But apart from a few experiments, little effort has been made to take teachers out of the educational cloister which they entered at the age of six. Few of us in education realize how cloistered we are, how indoctrinated in the practices of the world within a world which is the educational system.

But this is the task we face and the classroom teachers must bear the brunt of it. Failing, local initiative fails. Wise teachers find helpers all about them—supervisors, administrative officers, summer schools, books, often doubts and fears of anxious parents. And their task of adjustment is not easy, for parents, too, have faith in the healing power of the old practices. But the reward can be great. The discovery of the need for one child may mean more abundant life for a thousand or a hundred thousand, particularly if administrators, state officers, teachers colleges, and lay groups become more alert to the crop of bright ideas produced by creative teachers.

Parents and the Public

Local initiative developed in the days when laymen knew as much or almost as much about teaching as the teachers themselves. The layman's judgment was accepted by the teacher with little question. The school, such as it was, was a community school. Now it is put to a tremendous test. Can we maintain our local control without losing ground educationally? The present writers are inclined to think that we must.

One of the greatest obstacles to adaptation is public lack of understanding of the vast changes that have occurred in American education and American life since the turn of the century. The challenge of the principle of formal discipline, along with increased knowledge of learning, and individual differences coupled with the influx of the whole range of abilities into both elementary and high schools, has led to changes in objectives and methods of education. Neither the causes nor the purposes of these changes are gen-

erally understood by the public. Yet parents usually are eagerly interested in the story of such practice today which seeks to take their children where they are and help them grow to greater stature. And citizens who are not parents are not immune to the stimulus of this story of salvation for their neighbors' children. The necessary complexity of the educational process as it has been portrayed in the past has resulted in a cleavage of understanding between the public and the profession which the profession has too often despaired of closing.

Another major difficulty is the inadequate understanding of the role of the local public in a system of state schools operated through local initiative. Civic responsibilities for the educational service of government must be explained to children in the schools and to the public. Teachers, superintendents, and school boards, too, must learn their part. We must be resourceful in ways of carrying home to the public this tremendous responsibility. It is significant that adaptable schools have many ways of informing the public in addition to the universal and generally unplanned channel of the school children themselves.

Parents and laymen generally who are now interested in schools should become concerned with these two major problems: (1) public understanding of educational problems, and (2) public recognition of lay responsibility. An understanding of what modern education should be and of what the part of the public is in the structure of education, both legally and conceptually, should do a great deal to save the time of teachers and school boards from petty attacks and well-meant but ill-conceived drives to change this or retain that in the schools. In no small degree these fruits of ignorance account for the hesitation on the part of school people to sponsor lay participation in policy formation. Also, the problem of getting better board members cannot be satisfactorily solved until board members of a high calibre of understanding *emerge* from the community. The substitute procedure of handpicking and educating a few to act in a paternal fashion in the community can be only a makeshift.

CHAPTER XIX

Voluntary Contributors to Adaptability in the State and National Scene

MUCH has been said in recent months about implementation. Some educators have proposed a moratorium on research so that funds might be available for application. It has become customary to include in requests for grants for research, requests for funds to "implement" the results. The President of the American Council on Education has made clear the need for emphasis on implementation in his recent annual report:

Implementation continues to be a popular topic in educational circles. How to get the results and conclusions of studies and researches in education translated into actual practice in the classrooms, homes, and communities of the country without endless delays in time is a problem which will always be difficult but important in a decentralized system of education. . . .

This emphasis is shown in the nature of the Council's study of the Education of Teachers and in the work of the Council's Committee on Implementation which has recently reported.¹ The Department of Secondary School Principals of the National Education Association has established an "implementation" committee. This chapter seeks to draw out of our findings what appear to be implications for such groups.

To many concerned with school improvement in general and those concerned with specific changes, the findings of this study and those of Farnsworth, Ebey, and Bateman² will probably be startling. How slowly changes diffuse! How impossible are some of the changes we favor in schools financed as most American schools are today! How far behind American schools are in accepting some of the practices now long viewed as matters of course by educational leaders! How adaptable some schools are; how unadaptable others.

¹ *Educational Studies and Their Use: An Exploratory Study of the Processes of Implementation in Secondary Education*, Series I, Vol. IV, No. 11. Report of the Subcommittee on Implementation, May 1940.

² Farnsworth, *op. cit.*; Ebey, *op. cit.*; and Bateman, *op. cit.*

In these four conditions many will find the cause of failure of past efforts. Many young men who have seen a needed change making life more abundant for millions will look forward to old age with their cherished hopes only at the beginning of realization. At least the writers have found the results startling even though those very results had been forecast in the results of preliminary studies. The conditions that should have been forewarnings were, however, laid to local or transitory causes.

But we can be consoled with the fact that realizing the truth now and gauging our efforts to "things as they are" will make the task an easier one for those who come after us, while action that ignores the facts is, save for good luck, destined to futility and disillusionment for us and promises little for those who come after us.

*Rate, Cost, Lag, and Specificity in the Adaptation
Process*

Let us summarize a few truths and then proceed to look at the job we face.

THE SLOW COURSE OF ADAPTATIONS

Supplementing the Farnsworth and Bateman researches with those of the present study, we see that it is not unusual for a period of fifty years to elapse between the realization of need and the invention and first practical introduction of an acceptable way of meeting it. Following the first introduction there is a slow period of tryout when those who try are true pioneers, braving the scorn of their fellows and the possible loss of position and prestige. This period lasts until approximately three per cent of the potentially interested communities have made the change, a period of fifteen to fifty years. Thereafter the less daring take up the changes, and the next two per cent enter upon the new venture in a fifth of the time consumed by the first three per cent. The next five per cent period and the following ten per cent are bridged as quickly as the three to five per cent period, for somewhere along the line it becomes safe for sponsorship by the state department of education. It becomes accepted good practice. It flows forward then even if time has raised serious questions as to its validity. But fifty years may elapse before

complete diffusion—a period approximately as long as the period from first realization of need to the emergence of a practical way of meeting it. Some adaptations move faster; others more slowly.

THE COST ELEMENT

Expenditure is perhaps the most important conditioning element for adaptation. More than half the schools of America are at a level below that at which diffusion proceeds freely. Many favored adaptations are impossible with the present staff, equipment, and expenditure in all but a few special schools. Much mandatory legislation has failed in its purpose because of sheer inability of communities to meet the requirements.

EDUCATIONAL LAG

Discounting all the fine things currently favored, adaptations no longer subjects of argument among educational leaders appear to be only about 30 per cent diffused in American schools. Many adaptations are being pressed today that assume a general level of American education far above the true level. This may be due to failure to make allowance for necessary accompaniments of expenditure increase or to placing too great dependence on state average figures, which are greatly influenced in many states by a single community, such as New York City, Baltimore, or Chicago.

A fair consideration of the situation would lead some implementing groups to shift their energies to those structural improvements which would reduce the present lag, and increase the likelihood of success of some of their present efforts. Or, if their purpose is improvement rather than the sponsoring of a particular change or cluster of changes, in some instances their attention might well be shifted to more achievable goals.

GENERAL ADAPTABILITY

A fourth element encouraging to those interested in general improvement, and less encouraging to those interested in a specific change, is the tendency for adaptations to come in constellations. A community that forges ahead moves along several fronts. This suggests the possibility that advance may be best facilitated on the

one hand by the improvement of the structural design of school systems and on the other by the awakening of official leaders to the duty to adapt.

The Adaptation Pattern

So much for orientation. What do our findings suggest as to processes of implementation? First, they suggest the tentative acceptance of the conception of the adaptation pattern given here until a better one emerges. Unless we can alter circumstances which have produced the type of growth of education as thus revealed in the past, we must plan future growth along these lines. In either case our thinking must be built upon a realistic view of actual processes of educational adaptation. The phases and the characteristics of the adaptation pattern are summarized in Table 51.

THE PRE-INTRODUCTION PERIOD

From Farnsworth's study we see that the difficulties encountered in the pre-introduction period of an adaptation are:

- (1) Getting a clearcut picture of the need or a view of it to fit the facts. (Witness the false starts, inconsequential inventions that quickly run their course, such as mid-year promotions as an individualization device.)
- (2) *Breaking old conceptual patterns.*
- (3) Producing enough local leaders with understanding and courage to follow a new way.

Groups interested in implementation could do something to help by sponsoring a thoroughgoing exposition and clarification of conceptual patterns that control what we do. Little of this has emerged in the field of public education. The science and art of education has developed so rapidly that we have not been able to keep up with it. Perhaps if we would deplore the nature of research in education less and give our young men some idea of the conceptual patterns that make present-day leaders act the way they do, we would get both more research and more fertile invention in the field of practice. For example, why do most school systems which isolate children who *cannot* learn to read require them to spend most of their time trying to learn to read? Our guess is that

TABLE
Characteristics of the

TIME PERIOD		LENGTH EXPECTANCY *	CHARACTER OF WORK	ATTITUDE OF PROFESSIONAL LEADERS
Order	Character			
1	Emergence of awareness of need—invention	10X to 20X	Partial solution in terms of inadequate concepts—emergence of a conceptual pattern	Unaware—if aware of pioneer work, negative. Proponents considered eccentric
2 (0-3%)	Early introduction of authentic inventions	5X (2X to 8X)	Inventive combination—experimental period	Mostly lack of awareness. Few supporters; more negative
3 (3-10%)	Early diffusion	2X	Experimental period largely over, spreading by emulation	Acceptance
4 (10-100%)	Diffusion	9X (X for each 10%)	Emulation and state stimulation—permissive legislation—sometimes mandatory legislation	Acceptance but working on other things—early assumption (before 30% diffused) that the job is done

* X is the unit of time required to go from 10% to 20% diffusion, from 20% to three years.

Adaptation Pattern

ATTITUDE OF STATE DEPARTMENTS	ATTITUDE OF PROFESSION IN GENERAL— TEACHERS	ATTITUDE OF SCHOOL BOARDS AND GENERAL PUBLIC	TYPE OF COMMUNITY	NATURE OF GEOGRAPHICAL SPREAD
Unaware	Unaware	Unaware	Probably sub-urban or fairly large independent districts—wealthy, high expenditure	No spread
Unaware	Unaware	Unaware—special groups may be sponsoring and supporting	Probably sub-urban or fairly large independent districts—wealthy, high expenditure	One or more "clusters" in the state
Vague awareness—reserved judgment—laissez faire	Unaware	Unaware—except for pressure groups	Favored communities—emergence of less favored communities	Clustered
Laissez faire or more likely, stimulation. Some instances special aid. Late in period of crystallization in "standards"	From vague awareness to indifferent acceptance	Vague awareness, inactivity except for pressure groups	From above average down through whole range	Emerging from "clustering" to "shot-gun" distribution

30%, etc., up to 100%. In most of the adaptations studied it is approximately

most educators and laymen and reading specialists today assume that it is not education if it does not come through black symbols on white pages. At least this hypothesis squares with a vast amount of what appears to be malpractice in most schools from the kindergarten through the university. The reader may say, "*This* does not fit me for I do so and so and that challenges it." Then we may reply, "What do you believe and why do so many practices that fit this hypothesis remain in the schools?"

It would be a sign that education is coming of age if it could so appraise itself, placing on each of its driving concepts the proper labels, such as

- (1) Established law
- (2) Hypothesis
- (3) Objective
- (4) Corollary to a principle constituting a part of
a now-abandoned philosophy
- (5) Fact.

Teachers and administrators now go out to practice with very little differentiation in their minds between established truth, widely accepted objectives, and professors' hunches. Few, if any, graduate schools of education are staffed to the point where they can expect students to learn such distinctions while meeting the requirements for degrees.

Another approach to speeding up the pre-introduction process has to do with the implementation of needed structural change as portrayed in Chapter XVIII. Such information on what is considered good structural design for school systems as that currently disseminated by the Educational Policies Commission is a case in point.

A third field for service of value to all implementation is the extending of research in the pre-introduction period. What we know now is gained largely from Farnsworth's, Ebey's, and Bateman's studies and from histories of movements which with a few exceptions, such as Jessup's,^a do not give sufficient detail on the problem at hand to be very helpful and from broad implications of analyses,

^a Jessup, Walter A., *The Social Factors Affecting Special Supervision in the Public Schools of the United States*, 1910.

largely conjectural, of invention and social change in general. The Pennsylvania study has been concerned almost completely with diffusion. In the light of these studies it is possible to set the stage for studies using more refined methods than those heretofore available.

Fourth, we might draw the inference that more could be accumulated on the credit side and less on the debit side of an educational ledger if discoverers of new needs would recognize more fully that their audience is made up of potential inventors, not the general public. We need, in our public appeals, to call for solutions to our pressing problem—offering prizes, establishing laboratories, encouraging young men to undertake research on their own. We could do with less criticism of the profession for its failure to do what no one knows how to do. Our lack of discrimination here, expressing though it does the hearty youthfulness of the profession, has nevertheless led to much misunderstanding. Our National Education Association conventions for years have been characterized by diatribes at the profession for failing to do what no man knows how to do. The reaction indicated by the theme of the 1940 convention of the American Association of School Administrators, "What's right with our schools?" is the first step toward national meetings that would perpetually seek to answer four questions:

- (1) What have we done this year to clarify and improve the conceptual basis for education?
- (2) What have we done to invent ways of meeting the recognized problems and to put them into experimental operation?
- (3) What have we done to improve structural design to facilitate adaptation?
- (4) What progress have we made in diffusion of adaptations which have stood up in tryouts?

When we use our national conferences and conventions for thus evaluating our programs, perhaps we will find that the public, which plays such an important part in the diffusion process, will assume its role more willingly. The American Educational Research Association has been moving in this direction for years.

Finally there need to be listening posts for voices crying in the wilderness. Organizations concerned with special areas, as well as

those with purposes covering the whole scope of education, could do more in seeking for the causes of these cries. It seems to be the nature of men to confuse discovery of need with some method of meeting it. Note in Farnsworth's charts³ the recurrence of inadequate inventions that made some headway and were finally abandoned, but which represent the beginnings of recognition of some need. It is so easy to ignore or ridicule these efforts without looking to the elements of the situation that inspired their invention. We may assume with a fair degree of assurance that many of them represent a conflict between accepted practice and a real need. Therefore our "listeners" should be persons who can discover the conflict. Such an organization as the National Education Association that has state and community organizations might be able to serve as a collector and appraiser and thus speed up this long period between emergence of a cry and correct diagnosis of need.

The current study of the American Council on Education on the education of teachers is an interesting example of an implementation project directed at stimulating invention, appraisal, and early introduction.

INTRODUCTION AND DIFFUSION

Organizations concerned with the introduction of new adaptations should be helped by our study of the nature of communities which are early introducers. The most favorable to adaptation fall into two categories:

- (1) Suburban communities either in themselves making up a wide range of population types or constituting a part of a larger community with such characteristics.
- (2) Isolated communities with a cross section of social and economic circumstances.

In size, the communities with more than fifty teachers are more favorable than smaller communities, and those having expenditures considerably in excess of \$2,000 and much rather than little economic ability are more favorable as early introducers.

Socio-economic status of the people of a community is related to adaptability and may be estimated from the dominant occupa-

³ Farnsworth, *op. cit.*

tional groups or from the educational level of the population. As noted earlier, it seems to be more important to have a group of persons with particularly good education and with unusual understanding of educational problems than to have a relatively high average for the whole community.

Communities having a well-trained teaching staff recruited from a variety of teacher-training institutions and particularly those having a sizable minority of teachers above the general level are more likely subjects for early introduction of adaptations.

The most likely early introducer is the community that now rates high in adaptability. Those that adapt more adapt earlier.

Speeding up the geographical scattering of introducing centers is important, but for permanence it is wise to have at least two centers in a given region, such as a county. The local authorities may be assisted in interpreting the significance of the adaptation in the original communities and in spreading the results of the experience in the communities to which it is hoped the adaptation will spread.

Developing favorable attitudes in the initiating communities is probably more important than an approach through the teachers colleges since training seems easier to obtain than the favorable stage setting for an adaptation. In other words, community expectancy, expressed in official policy, whatever it may be, will generally be achieved by the teaching staff. As far as adaptability of a school system is concerned the old saying, "As the teacher, so the school" is fairly descriptive of the findings of this study. We would amend it, however, to "As the community, so the teacher and so the school."

Efforts to interest state departments of education and teachers colleges in the diffusion of a given adaptation earlier than it would normally be diffused are probably one of the most effective devices for spreading an adaptation once it is introduced. Another point of attack is through the parents' associations. Resolutions of school board groups and favorable discussions by administrative groups help to change the climate of opinion both in and outside the profession.

More attention should be given also to obtaining the support of

professional leaders occupying key positions. A single doubt from such persons often throws cold water on the efforts of the large number who look to them for approval. No program can be expected to succeed with any degree of certainty unless the support of those in influential positions is to be had.

Degeneration of an adaptation into a "patent" system must be avoided both by the sponsoring organization and by central officers who are to *diffuse* it. Few adaptations can live to complete diffusion without modification. Some may be applied in the same form to all communities over a wide span of years. In many unadapted schools adaptations have become ends in themselves. Our schools are shot through with survivals of adaptations which were of only temporary or transitional value.

An observation of the general unawareness of potentially helpful outside pressure groups, together with the general tendency for professional groups to prevent outsiders "pushing in on" the schools, may be worth recording. School people and school boards tend to live in their own little community niche. None too often do they take the initiative to solicit the aid of outside groups either local or non-local in nature. Is this altogether their fault?

The Local Initiative Setting

While most educational groups conform to the pattern of control basic to the exercise of local initiative, non-school groups tend to try to get desired results by central fiat. Hence the increase in mandatory legislation, a great deal of which represents attempts at adaptation. But educational groups are not entirely free from the tendency to wish to get their favored adaptations once and for all. This shortcut to adaptation is highly questionable. Either it limits freedom to internal adaptation or it is futile. Nearly every state requires the teaching of reading, for example. The state of Maine does not. But every school in Maine teaches reading. The requirement is superfluous. But when a mandatory adaptation is couched in specific terms, these terms are always limiting to local initiative and usually deal with non-essential elements. The thirty minutes a day requirement for physical education can be met by any school without getting the results expected by the sponsors of the mandate.

But the school that honestly seeks to meet the spirit of the requirements (and would have done so without the mandate) finds itself building its whole school program around an inflexible and inconsequential element of time. Since such mandates are typically drawn without regard to ability to finance, the schools that are *forced* to comply tend to be those which for financial reasons are required to meet the mandate in letter but not in spirit.

The road to adaptation by mandate is rosy only in prospect. Discouragingly complex as it is there seems to be no promising shortcut to authentic adaptation through central fiat. The shortcuts thus far tried limit local initiative and hence adaptability in other elements, and are not likely to yield authentic results in their own sphere. The slow diffusion of authentic adaptations in large cities should have long since made us suspicious of mandates.

A warning should be sounded here against the tendency to denounce all mandatory legislation. Such an attitude is quite as untenable as that decried above. Mandatory legislation has a useful sphere in defining structure and in assuring prudential operation. Structural mandates may have as their chief purpose the facilitation of adaptation. Prudential mandates are always potential enemies of adaptability, but consideration of the adaptability criterion will generally serve to reveal the safe limits within which prudential measures may operate. For example, auditing of accounts by central officers is a sound prudential practice and might well be made mandatory. However, when it goes beyond auditing for honesty and takes on direct or indirect controls over the nature of expenditures, it shackles local freedom and thereby interferes with adaptability.

Approaches through state agencies of this type are undesirable for another reason. State agencies seldom initiate. When an adaptation is past the experimental stage they may pass permissive legislation (long after a number of communities have already introduced the adaptation) and appoint special officers to help in diffusion. But this comes relatively late in the life history of the adaptation. The communities are the initiators. To assume that the central agency can perform its task of hastening diffusion simply by *legislating* adaptation is to over-simplify the processes involved.

Our findings suggest that foundations and other voluntary agencies place greater stress on the individual community.

Graduate Schools of Education

Perhaps more than any other agencies, a dozen or so graduate schools of education have been responsible for the discovery and development of conceptual patterns, appraisal devices, and promising practices. Without their work we would in no sense be conscious of the lag portrayed in this volume.

The continuous concern of many of our American training institutions with the new, the growing edge, is all to the good. The danger is that persons trained in these institutions put too great emphasis on these newer things to the neglect of yet undiffused adaptations. The result is often discouragement for the individual to the point that he neglects the older, now somewhat prosaic adaptations, hoping for an opportunity to do a more dramatic job.

Institutions, national and local, should assess the respective parts they can play in the vast task of opening up new frontiers and the more immediate task of closing the gaps between actual practice and accepted good practice.

Both types of training institutions can give their students a better realization of the structural design of public education, the methods by which it may be improved, and the manner by which they can contribute their part in the processes of invention, introduction, and diffusion of adaptation to new or changing needs.

Supplements

Research Methods in the Study of Adaptability

IN CONDUCTING the study reported in this volume, the authors proceeded in terms of certain controlling conceptual patterns and drew upon certain tools of research without giving particular concern to the matter of defining or classifying the particular type of methodology employed. The reader, upon examining these pages, is no doubt left with the impression that the research method followed has been unsystematic. Many old tools of research have been used to examine new types of conceptual patterns. Basic hypotheses contributing to this study have appeared in the literature on state finance and have been the subject of concern for a number of years to the senior author.¹

In spite of the fact that our efforts were constantly pointed up to results and answers to a number of practical questions which have harassed the student of state structural organization, we have not attempted to justify methodology in terms of conventional rubrics, nor have we, for that matter, given much thought to it, realizing that throughout we were utilizing perhaps in new ways a great deal of the stock in trade of the modern researcher. In retrospect, however, it appears important to review some of the pertinent aspects of methodology which have been employed, if for no other reason than to orient the student anticipating further investigation in this area.

Area of Investigation

The recommendation of the Columbia University Council for Research in the Social Sciences that a sociologist be included on the research staff of this project was taken to mean that the whole staff was to look widely for factors influencing the process of adaptive change of schools by any method that seemed fruitful.

¹ See American Council on Education, *Educational Research, Its Nature, Essential Conditions and Controlling Concepts*. Chapter VI, "Research in the Structural Aspects of Educational Finance" by Paul R. Mort. Washington, D. C.: The Council, 1939.

Instead of singling out one or two variables, such as method of financial support or the allocation of control as between the state government and local school districts, all the staff—not merely the sociologist—looked to some extent at adaptations in their setting of community customs, pressure groups, prominent leaders, motives, opinions and information of key individuals, role of parents, teachers, students and administrators, role of the state department of education and state legislature, location and other geographical factors, dominant emphases of “American culture” and its variants, etc.

No particular “brand” of sociology was adhered to; rather, an attempt was made to utilize as tools concepts and hypotheses which had been put forward under various names, such as sociology, educational sociology, psychiatry, psychology of leadership, ethics, semantics, ecology, economics, and philosophy.

There was no segmental division of labor between the sociologist and the other members of the staff. Everyone at various times worked on the project as a whole and on its various phases. However, there were differences of emphasis represented by widely different backgrounds of the members of the research staff. One of these hinges mainly on the relative importance of statistical indices on the one hand, and intensive case studies of individuals and of communities on the other.

It has been recognized from the start that the tabulation of factors under headings, such as stereotypes, motives, methods of finance, state laws and teacher training, is not a picture of those factors in action. Words such as “stereotype” are valuable tools of abstraction useful in calling attention to certain aspects of sources of influence, but the explanation of a process of adaptation would look more like the back of a telephone switchboard than a neat tabulation of factors. We did not hesitate to distinguish mentally some factors which seldom or never function independently in reality since we subscribe to the principle stated so well by James:

To understand a thing rightly we need to see it both out of its environment and in it, and to have acquaintance with its whole range of variations.²

² James, William, *The Varieties of Religious Experience*. New York: Longmans, Green & Company, 1902.

The intensive study of individual communities is apt to result in mere registration of particular facts. To avoid being lost in a welter of particularity, both sociologist and educational members of our staff tried to project observations on several levels of generality. An attempt was made to look at a given community, teacher, leader, parent, board member, or superintendent, with questions in mind like the following: What is there here that is merely local or individual? Is there anything atypical of a county, region, state, or the nation? Is there anything that could be called "human nature"?

The translation of adaptability into terms of human behavior—especially social behavior—has been the central emphasis of the contribution of sociology in this work. When the problem of getting change is so stated, the importance of identifying and tracing the role of various psychological factors becomes apparent. It is not sufficient to know that the "important" parents in a given town think a proposed kindergarten or nursery school is a good idea. Thought, to become effective, "must be warmed by emotion." We tried to find in each instance as much as we could of the emotions which put behind an idea the drive to action. We wanted to know the attitudes, habits of thought, and devices of leadership which helped to elicit and direct these emotions.

Just how far we can, and should, study these matters depends upon the degree to which the precision of quantification is required, for in this area much evidence is circumstantial and non-quantitative. In this sense, the authors believe in going far in the refinement of statistical techniques when proper recognition is made of its true place in the complete pattern of thought.

It was thus a source of gratification that these unpremeditated, unscheduled, unsystematically assembled hunches proved useful in interpreting certain abstract statistical results. For in many cases, the weight of "circumstantial" evidence or the "auscultation" of certain situations enabled us to reject a statistical inference or to interpret its implications in more intelligible terms. Observations of this type helped explain, for example, why a correlation was .54 instead of 1.00. In the second place, the blind shots in the dark constantly produced challenging hypotheses, some of which were

verifiable in our work and some of which were ground-breakers, the first step, in opening unknown areas.

Most students of human affairs agree that advantages accrue to the economy and effectiveness of inquiry by each new device for systematizing or quantifying data. In areas where these devices are wanting or where our ingenuity failed us in search for necessary techniques, we nevertheless explored as thoroughly as possible. In this we recognize that to some extent our efforts were, relatively speaking, "a groping in the dark." Keeping certain areas open in this way we found worth while for two reasons. In the first place, every statistic requires supplemental filters of theory and supporting observation to give it meaning. In the second place, through methods of "auscultation" innumerable crevices may be reached in the penumbra by untouched statistical generalizations. It is undoubtedly true in our subject, as it has been said of the psychology of childhood, that "nothing is completely independent of the whole; on the other hand, nothing is completely submerged in it." In our efforts, therefore, we examined atomistically what we could filter out. At the same time we boldly struck out to view the operation of processes in the entire setting of population aggregates and social relationship and institutions of our culture.

Human Motives and Methods

The more important problem raised by the mention of motives and attitudes is method. We give some attention to it here because it is this phase of our work with which it was found most difficult to deal. How can we get at motives and attitudes? What is evidence? And how can we estimate the degree of reliability?

It is superficial to say that one gets at motives and attitudes mainly through interviews. There are interviews and interviews—they can be fruitless and positively misleading, as well as informative. It is necessary to ask what happens in an interview that furnishes evidence for imputing a given motive or attitude.

For some investigators nearly all questions of method will revolve around the problem of getting data which enable them to put themselves in the places of the individuals concerned in a given adaptation. Before a given adaptation can be explained it is neces-

sary to "guess" what the participating individuals were aiming at, what their motives, attitudes, and stereotypes were, and how they responded to the various stimuli making for this change.

Interviews were used extensively to gain data for such vicarious experience. In addition to what the interviewers said, attempts were made to note such items as tone of voice, posture, gestures, degrees of "rapport" with the interviewer, facial expressions, and the like. Only part of this is systematic. Some of the value of the interview in this work is a part of the interviewer. With experience he becomes more skilled at sizing up the subject.

Interviews were supplemented by newspaper records, school board minutes, reports of superintendents, observation of people in action, observation of various symbiotic features of the community, such as churches, factories, housing, sectional differences, and so forth.

The results of the exploratory field work may have an important bearing on the planning of future projects. The staff believes that any project designed to study the operation of only one cluster of factors, such as state-local relationships, without considering other variables, such as customs, leaders, attitudes, teacher inbreeding, and the like, will run into serious if not insuperable difficulties. One set of factors, such as methods of finance, teacher supervision, or allocation of control, may be profitably singled out for attention *provided the setting is not neglected*. An investigation of the operation of a selected cluster of factors in conjunction with other factors would seem to require intensive studies of school systems in their community setting. It certainly appears that profitable research in the factors influencing adaptability is to be had through more intensive study of individual communities than was possible in our work.

The value of individual life histories is another "lesson" to be drawn from the exploratory field work. The resistance of teachers, superintendents, parents, and others to new practices often cannot be explained by influences now operating, such as parent protest and insufficient funds. Often past experiences, perhaps forgotten, have left a specific belief—for example the idea that algebra trains the mind, or some general personality trait—reverence for detail,

delight in meticulous scheduling of time, neatness, and discipline. It may be these residues of experiences far back in an individual's life history which are most influential in leading to a decision to oppose or accept a new practice. A superintendent's reaction to state department persuasion may be influenced much more by a general personality trait of submissiveness, or hostility, than by the specific arguments of the state department representatives.

Research Methods Used in This Study

The first impulse a writer has when attempting to describe the methodology which he has employed is to classify his research according to traditional bases. These classifications have not been found adequate or particularly helpful. Thus we may say that the study is statistical if our criterion is the basis upon which our methods were obtained. Or, we might say it is historical if the basis for classification is the nature of the subject of the study. The writers, in viewing the description of methods employed in this study, raised the question, What does it matter whether we call the methodology statistical, historical, ecological, or something else? But for the present it seems important to point to certain commonly designated types of research which have been utilized in this study. This will contribute to our belief that there is no particular gain in committing or limiting one's self to a particular line of action.

Why enter upon the controversy of whether our research is sociological or educational, ecological or statistical? It seems that such issues are highly theoretical and perhaps misleading when, as we have done, we make use of whatever tools promise to contribute to the end in view in a way which attempts to make them compatible with one another and intrinsic to the whole problem. For that matter, even when the emphasis is based upon a single set of objectives, it is felt that a breadth of point of view is essential. In this sense there is perhaps a universality of method. In the field of educational research we do certain things not commonly engaged upon in other fields. Unique in the field of education, for example, is development in the area of tests and measurements. But why consider the pattern exclusively educational if it is useful and applicable in other areas? Similarly, if principles from the field of

sociology, human ecology, or biology are applicable to educational studies, with no liberties taken in analogical reasoning, why then limit one's self by such artificial classification?

THE USE OF STATISTICAL METHOD

Although we are greatly indebted to statistical methods, so-called, the writers do not feel that this is a statistical study. Wherever quantification was valuable and usable in our work, this method was employed. But its usefulness was not limited to abstract numerical operations. For example, the pattern of analysis of variance and covariance followed in our study of thirty-six communities served as a part of the configurational structure upon which the plan of the study was developed. For this reason it may be said that the statistical method referred to is more than that—it is part and parcel of the *methodology*.

We viewed the statistical aspects of the study from this angle: What broad sweeps of variation in adaptability of schools may be explained by this or that measure? But the answer to this question produced but half the information sought. The other aspects involved answers to the questions: (1) Why and how is it that the factor represented by the measure operates upon the adaptability of schools? and (2) What things are responsible for the residual variance or variability not explained by the measure under consideration? Therefore, the statistics served the end of eliminating broad sweeps of information and provided the initial steps upon which further approaches could be profitably pursued. It must be said, of course, that the statistics constantly were serviceable in the task of description. It is perhaps efficient in many processes of testing ideas to have, for example, a simple record of the fact that Community A is larger than Community B. If we state that Community A has a population of 100,000 and Community B has a population of 10,000, we of course have a more meaningful statement for some purposes. Since for the most part the statistical methods which have most bearing on methodology have been those that involve correlation or concomitant variation, we shall make reference here to points which have come to our attention in the application of these methods.

CORRELATIONAL TECHNIQUES

The statistician uses various terms and techniques for getting at the same general consideration, that of concomitant variation. This may be done by contingency, many types of coefficients of correlation, chi-square, or by analysis of variance. We shall not go into these techniques in detail, but if one will examine Table 70 in Supplement B, he will see that the relationship of certain factors with adaptability has been observed by means of analysis of variance and by correlation. When analysis of variance is applied to communities grouped according to some criterion, such as community type classifications, and results are found to be *significant*, we are finding that the particular basis of classification is related to adaptability of schools. If a measure is scalable, this same thing can be done by the product-moment correlation. The two may be combined by means of covariance analysis so that correlation may be viewed through a filtering out of the qualitative factors upon which communities have been grouped. The analysis of covariance technique as used in this study has proved itself to be a contribution to thinking in the use of correlational methods in addition, of course, to its value in studies where one is necessarily limited to a small number of cases.

One of the greatest difficulties in the use of the correlation coefficient has been termed by some the problem of the effects of homogeneity upon correlation. In educational measurements, in computing the reliability coefficients of tests, for example, we know that correlation of Form A of a test with Form B of a test may be expected to be much higher if the subjects are taken from all grades in a school system than if they are taken only, let us say, from the fifth grade. This is one aspect of a precaution required in interpreting correlation coefficients which the covariance technique greatly simplifies.

Referring to the master table in Supplement B (Table 70), one sees quite a variation in the correlations of adaptability with various measures when the correlation is viewed through various types of circumstances. These precautions greatly reduce the limitations of correlation techniques explained in some detail below. A graphic portrayal of how this concept operates is given by Figures 27 and 28.

In Figure 27 appear twenty-five points, the coordinates of which are deviations in Y and X from the averages of all twenty-five cases, or the averages of the particular group in which an individual case is classified. In this figure are axes representing the means of all twenty-five cases and three other sets of axes, one for each hypothetical group. The three groups may be men, women, and chil-

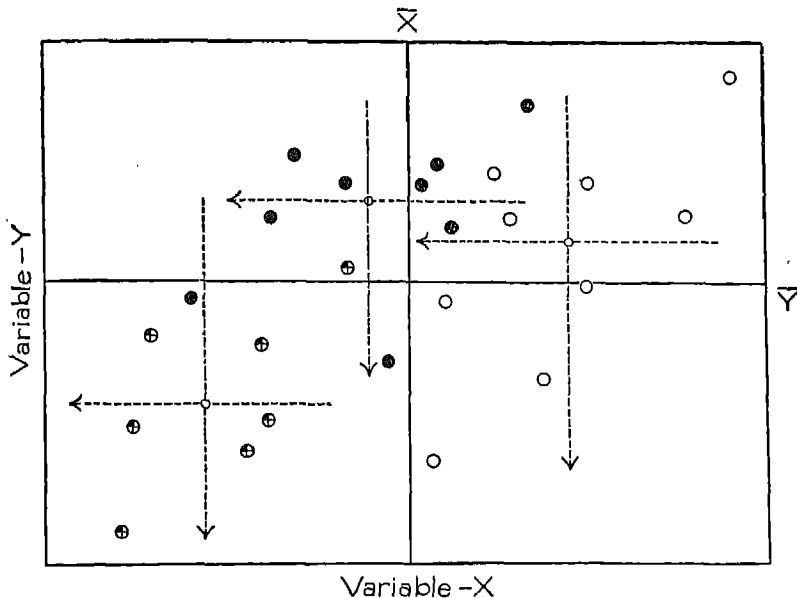


Figure 27. Hypothetical Distribution Showing Deviations from Total Means and Deviations from Group Means

dren, or we may think of them as industrial communities, suburban communities, and agricultural communities, or any qualitative or quantitative grouping of the population of twenty-five in question.

The nine cases in the group corresponding to the right-hand set of axes are marked with circles. The nine cases in the centermost group are indicated by solid circles. The grouping with axes on the extreme left is represented by seven circles partially blocked in. The distribution of all circles in Figure 27 forms a scatter diagram showing the nature of the total correlation, all communities lumped together, without any consideration of heterogeneity or differences

with reference to the quality upon which they are classified into groups.

The correlation of communities homogeneous with respect to the basis of classifying groups would be represented by an array or scatter of the circles in Figure 27 of one particular group about its own particular set of axes. Now it may be seen from Figure 27 that these individual "within class" correlations could be much the same in direction and quantity, they could vary quite considerably from the *total correlation*, and they could also be definitely in a direction opposite to that of the total correlation.

The over-all scatter in Figure 27 is in a positive direction. In the particular illustration the scatter of the three separate groups indicates a positive relationship of the two variables, but it is to be pointed out that the individual groups could all follow a negative trend while the total pattern could still be positive. Any combination of differences in the nature of group correlations, as compared with total correlations, is possible.

In some instances it is of value to express the three *within group* correlations together. If the three sets of group axes were of cellophane, each with its set of points in proper position such that they could be shifted about, one would be able to superimpose one set upon the other. By carefully aligning corresponding axes, the result would appear as in Figure 28. This shows the combined deviations of *X* and *Y* of the twenty-five cases from group axes, the one set of axes representing all three. This scatter diagram indicates the nature of the *within group* correlation, the inferred correlation if all had been in groups with identical *X* means and identical *Y* means.

The statistical techniques used in this study have effected just such translations. This explains the nature of variations of correlation that appear in the three columns of Table 70.

So much for the discussion of attempts to improve the usefulness of correlation in our work. This technique still has limitations which may be summarized as follows:

Unscaled Measures. One set of limitations stems from the difficulty of expressing some of the various factors in terms of numbers. How can the various traits of superintendents, such as leadership, be

expressed as a number? It is true that various scoring systems have been worked out for superintendents, board members and teachers, but it is very difficult to get comparable scores for qualities so complex and elusive as "persuasiveness," "personal charm," "ability to fit into a given community," or a "winning smile." And if a numerical coefficient is but a faint and unreliable reflection

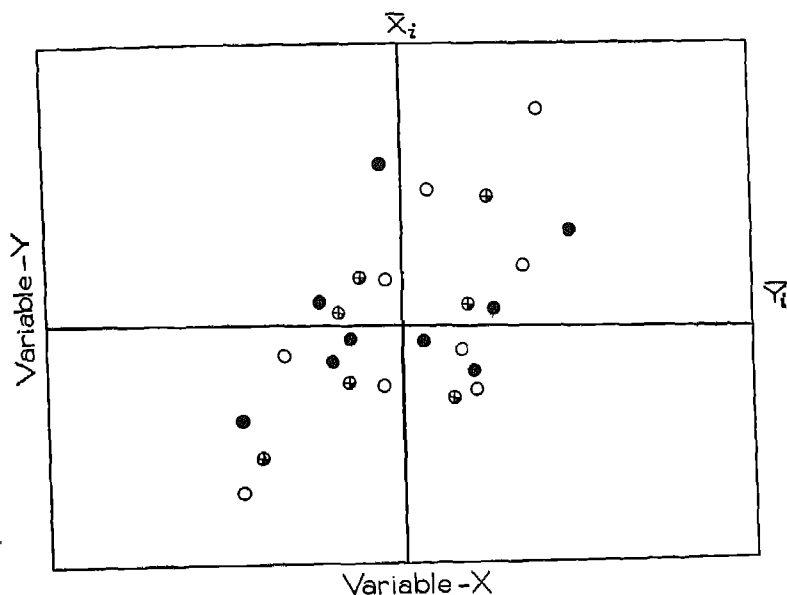


Figure 28. Hypothetical Distribution—Same as Figure 27 with Three Sets of Group Axes Superimposed

of qualities of leadership taken separately, it is likely that a number can bear little relation to the complex inter-functioning of these traits in a given leader.

Correlation Conceals Individual Comparisons. The method of correlating numerical indexes works only when the factor concerned actually produces results in enough cases to provide a significant correlation. But it is a matter of everyday observation that tendencies may be at work without producing measurable results. Teacher tenure may, by removing anxiety, tend to favor adaptability. But in many persons this response may be outweighed by the atti-

tude that "I am assured of a job, why should I care about new-fangled ideas." New buildings may encourage adaptability by providing more adaptable equipment and in other ways, but this tendency may be partly or wholly nullified by absorption of administrators and even teachers in the built-in mechanical gadgets plus the desire to keep the building "looking like new."³

Instances such as these seem to indicate that factors may be at work in a large number of cases without necessarily showing up in the course of group comparisons.

Supplemental Information. Whatever the variable selected for special study—whether it be expenditure, tax leeway, teacher adjustment, size of community, partisan or non-partisan city elections, percentage of foreign born, amount of in-service training of teachers, inbreeding of teachers—information beyond the index itself is necessary. It is for this reason that field visits and interviewing were used in our study. It was thus possible to see these factors at work. *The discovery of a high correlation between a factor and adaptability may be looked upon as only the beginning of a research project.* From the viewpoint of administrative control as well as scientific research, it is important to know, in addition, the following: (1) whether a few dominant factors produce the uniformity revealed by the correlation, or whether many different factors are cooperating; (2) the likelihood that the factors accounting for the correlation can be relied upon to continue to act uniformly, or whether they are apt to change in their relation to adaptability; (3) whether participants can be depended upon to react to the given set-up in about the same way in most cases, so that their motives, while different, can be relied upon to produce the uniform behavior implied by the correlation, or whether their motives have to be directed by skillful leaders. Only through case studies of communities and case studies of individuals and groups within each community can such information be reliably obtained.

If tax leeway is one of the variables which correlates highly with adaptability, it is important to know how the presence of

³ Field work brought to light some startling instances of preoccupation with these externa. In one city a large part of the experimentation with activity programs was taking place in the old buildings where there was no fear of scratching or staining the floors.

this leeway operates to increase the number of adaptations. Perhaps it operates mainly through the board in the form of a willingness to spend "just a little more money to give our children the best." Only case studies will tell.

The Role of Scientific Method

Decidedly lacking in our research is anything of the philosophical approach. Neither have we attempted to make decisions as to the finality of the conceptual backdrop of our study, the American pattern of education in a democracy, that democracy itself, and particularly the matrix of school finance theory; nor have we drawn upon metaphysics in issuing new interpretations or hypotheses. Our methods have been empirical. In the struggle for reality we have cast our lot with the instrumentalists.⁴ As our research progressed new hunches appeared, old hypotheses were supported or disproved and our picture of the intellectual pattern of our field of inquiry thus underwent constant reconstruction. To the technician this line of attack may seem opportunistic and unsystematic, but only by this means did we feel that we were to serve the requirements of exploration in our work.

Our approach has been decidedly operational. Our concept of adaptability itself is measured and defined in terms of manifestations of that something found in "adaptable schools." In our efforts to quantify, however, we have not assumed faith in materialistic control of human affairs and we have not hoped thus to produce an invariable system of generalizations. The difference between the quantified and the unquantified was found not in any sense a dichotomization of the important and the insignificant.

The authors have believed that in extremest views on the utility of various approaches lie the greatest dangers. Our discussion of reaching beyond the statistical abstraction to the individual case is not a new problem. It has been a subject of analysis with reference to methodologies in the field of psychology. Allport has written that:

⁴ For an analysis of the view that through research the internal pattern of a field of research is developed see Henry W. Holmes, in American Council on Education, *Educational Research, Its Nature, Essential Conditions, and Controlling Concepts*, pp. 167-186. Washington, D. C.: The Council, 1939.

It is not true that apart from a narrow range of segmental reactions in the laboratory we psychologists can predict very little concerning human conduct. It is argued, of course, that sophistication in methodology will improve matters. Yet there are two grounds for doubting this claim. First, since the current methodological trend will not take direct experience as a model for its constructs nor return to it for a validation of its results, it seems unlikely that the utility of its predictions will be great. Or to state the point affirmatively, in order to predict events of pressing significance for human life one must *deal* with these events (not with some simplified surrogate or analogue), studying them at a suitable level of complexity and checking one's predictions by the actual lives men lead.

The second ground for misgiving lies in the fact that the modern methodologist, no less than his predecessors throughout the history of psychological science, fails to see the peculiar need in psychology for the prediction of the individual event. Of the two kinds of prediction appropriate to psychology—the actuarial and the individual—the former only, up to now, has received the attention it deserves.⁵

In urging greater attention to the individual type of prediction Allport illustrates, "If seven in ten Americans go to the movies each week, it does not follow that I have seven in ten chances of attending. Only a knowledge of *my* attitudes, interests, and environmental situation will tell you my chances, and bring your prediction from a 70 per cent actuarial statement to a 100 per cent certain individual prediction." He offers two admonitions, however, to the clinical psychologist who will say that his daily work requires all manner of individual predictions, and that guidance is based upon it. "First, clinicians need to check their judgments rigorously, for the validity of clinical predictions is rarely known. Further, they need to make explicit the basis on which their correct predictions are made."

A Configuration of Elements

Much progress has been made in understanding the context of the many variables we have studied since the publication of our first monograph on adaptability.⁶ Indeed, the present study may be con-

⁵ Gordon W. Allport, "The Psychologist's Frame of Reference." *Psychological Bulletin*, Vol. 37, pp. 1-28, January, 1940.

⁶ See Mort, Paul R. and Cornell, Francis G., *Adaptability of Public School Systems*, pp. 40-68.

sidered for the most part an attempt to extend the methodological pattern as initially set forth in one chapter of the early volume. At that time some order had been introduced in the elements that had been encountered in our studies by the classification of ingredients into (1) factors not directly subject to administrative control, (2) elements of school organization affecting adaptability, and (3) agencies and devices in the adaptation process. We have now somewhat altered this view as the result of our two years' experience in Pennsylvania. We organize our thinking now along the following three-dimensional pattern. First, there is the place-to-place or spatial element represented by variations among communities; second, the temporal or time element which has been introduced in our present study; and third, the pattern of adaptation itself in relation to its contributing forces. By taking a section of our figure and thus eliminating spatial differences, we may think of viewing the balance of our configuration as a basis for certain types of studies. The horizontal dimension in this figure would represent the temporal variable. Within our diagram we would have indicated in relation to time the hypothetical view of the composite growth of adaptations in a great many school systems located in a tremendous variety of geographical circumstances. The vertical factor would be the level of adaptation with its supporting or obstructing media. We may view the level attained by any single adaptation in a great many of our communities as being the resultant of the balance between positive and negative forces operating upon it. The diagrammatical analysis may be viewed as our methodological frame of reference.

It is interesting to note how the many types of studies and many approaches to the study of adaptability may be viewed from an examination of various segments of this design. Thus, if we had taken a slice from our three-dimensional frame of reference much as before, representing not a composite of many communities but a single community, we would have a community case study approach. That is to say, in the study of adaptability we would, thereby, attempt to cover a wide range of adaptations in a single school system viewed with reference to the many contributing controllable and relatively non-controllable elements.

By taking a profile section of our pattern, the result would represent still another approach. We would then have the possibility of studying adaptability with the temporal element removed. Such was the study of Ebey in the city of St. Louis with reference to neighborhoods in that city.⁷ The number of specific adaptations and the number of different school districts, of course, may vary considerably in studies of this type. Here we are studying adaptability at a given time, either with reference to one community or several communities.

In the first case, the approach might be called the community survey or case study, but with this difference—the temporal element is not considered. Without the temporal element but with a number of communities such as will include the spatial element, the study becomes one of present status in which normative methods are used. When a great many factors are viewed as they bear upon adaptability, then the approach may be correlational, statistical, or observational.

Now by means of a horizontal section, a slightly different type of study is suggested. Here the concern is with variations in the extent of specific adaptations at various levels viewed from a consideration of operating forces and the temporal and spatial elements. Such were some of the geographical studies in this report.

The most difficult ingredient to include is the temporal element. With a concept as dynamic as the adaptability concept, it is very difficult to find answers to the many questions without the longitudinal type of study.

The value of the cross-sectional slice, such as the study by Cillié,⁸ is, of course, apparent, but here purposes are somewhat different. Purposes for that matter are definitely interpretable in terms of the section of the configuration with which the researcher is planning to deal.

In the introduction to this section the authors expressed their belief in methodology only as it contributes functionally to the work of the researcher in planning his program. Thus the methodological pattern set forth above was largely developed along with the pro-

⁷ Ebey, *op. cit.*

⁸ Cillié, *op. cit.*

gram of research itself. The development of the pattern was considered a by-product of the research tasks at hand. Nevertheless we pushed into such analyses of methodology as have been noted here.

It is impossible to go far on a research venture without some form of controlling conceptualization. As has been aptly stated in the Holmes report:⁹

As someone long ago remarked in connection with scientific work in the natural sciences: You do not go down to the beach, take a deep breath, stretch out your arms and say, 'Behold the wonders of nature and you shall understand them.' Such reference is to aesthetics, histrionics, and the humanities—all important and refreshing; but it is not of the essence of science.

In other words, one does not, in research, simply go out and immerse himself in the culture of the community and in the educational system of that community and come out with a picture of what is taking place. Some direction is necessary. In fact, it is the combination of our methodological pattern and our statistical approaches which has made this possible. Our problem was to reach beyond the limitations of individual intensive case studies in communities, the community survey type of approach, into a study of a relatively small number of communities with some organization of results.

When we imply that we have followed something of an eclectic approach, we do not mean that our experimental and observational outlook was the usual non-controlled variety which would result in one's assembling tons of descriptive and unrelated material. Such order as was introduced into the great masses of matter which we would cover in our surveys is attributable to the framework of organization within which our findings were arranged.

A Reconciliation of Conflicts

The first conclusion to be made from this statement on methodology is that the authors have attempted to avoid limitations of particular techniques, methods, and points of view, and have moved forward in their study with an effort to make use of such tools as best served the field. In our own minds, we feel that we have

⁹ Cf. Holmes, Henry W., *op. cit.*

avoided the pitfall of being drawn into polarization of point of view with reference to the whole or the part method, the mass descriptive approach versus the limited case study upon carefully isolated factors, or the statistical versus the non-quantification approaches.

In these efforts we have fully realized that we have been restricted in attempting to reach the many areas into which our investigation has entered. We realized that along with methods of well-established utility we have employed some of doubtful or uncertain reliability and validity. All this was done with the purpose in mind of utilizing all tools at hand toward the end of examining a very intricate and dynamic complex, the process of adaptation. For such crudities as have resulted, the authors make no apologies, for there has been much in compensation through working with relationships and materials thrown together in new context and a somewhat new set of conceptional patterns from which to view American public education.

SUPPLEMENT B

Statistical Methods

THROUGHOUT this volume there have been comparisons of averages based upon limited samples of the districts in the State of Pennsylvania from which our information might have been obtained. Our original questionnaires were distributed to all first-, second-, and third-class districts and one-tenth of the fourth-class districts in the State, but the return was not complete. For this reason, the influence of sampling was operative. The small number of communities in which field studies were made represented even a much more limited cross-section of school districts throughout the State. The authors, therefore, attempted to use those statistical methods which best make proper allowances for possible influence of chance or sampling upon the statistics recorded.

One statistical method which lends itself admirably to the requirements of caution in the interpretation of statistics of small numbers is the analysis of variance techniques developed by Professor R. A. Fisher and others.¹ But recently this technique has come to be accepted among educational technicians as an important tool along with older statistical methods which have been used in the field of education for many years. No attempt is to be made here to duplicate the very excellent expositions now available of the theory and application of analysis of variance, but a brief review for the benefit of those who have not made use of this technique will follow, with illustrations taken from our text.²

¹ Fisher, R. A., *Statistical Methods for Research Workers*. London: Oliver and Boyd, 1936, 339 p.; Tippet, L. H. C., *The Methods of Statistics*. London: Williams and Norgate, Ltd., 1937, 280 p.; Snedecor, G. W., *Statistical Methods*. Ames, Iowa: Collegiate Press, 1938, 388 p.; Rider, Paul R., *An Introduction to Modern Statistical Methods*. New York: John Wiley & Sons, Inc., 1939, 220 p.; and Lindquist, E. F., *Statistical Analysis in Educational Research*. Boston: Houghton Mifflin Co., 1940, 266 p.

² Mastery of the theory and application of analysis of variance and covariance is possible through references cited in footnote 1.

*Statistical Note 1**Analysis of Variance Applied to Regional Variations in Adaptability*

In Chapter III reference was made to differences in the extent to which the twelve adaptations as a whole had been introduced in various regions of the State. This was represented graphically.³ In the following paragraphs we shall present a running account of this analysis, injecting in some detail the statistical presentation.

One indicator of the extent of adaptability in communities is the number of the twelve projects being studied which have been introduced. A distribution of the frequencies with which the twelve adaptations have taken root in communities throughout Pennsylvania shows a spread from zero, or none at all, to eleven. No community was found in which all twelve changes had taken place. The average district had 3.84 of the twelve adaptations. The standard deviation for all districts was 2.53.

It might be expected that a certain amount of variation in the extent of the diffusion of the adaptations is associated with differences among regions in such characteristics of their school districts as size and other regional characteristics as well. Table 52 shows the distribution of the adaptations in the twelve regions under study. In the table the distribution of adaptations is made in terms of the number of districts below the state median number of weighted elementary classroom units in each region and the number of districts over the state median number of weighted elementary classroom units in each region. For each region, therefore, there is a mean for all districts and separate means for large and small districts. An examination of the means for all districts reveals that the average number of adaptations varies from 2.47 in Region 9 to 5.18 in Region 1.

Let us limit our attention for the time being merely to the variation of the means shown in the last column of Table 52. Could the variation of the twelve region averages have been a variation due simply to fluctuations of sampling? The answer to this question is

³ Cf. *supra*, Figures 3 and 4, pp. 55-56.

TABLE 52

*Distribution of Number of Twelve Innovations by Region and Size Class
348 Pennsylvania School Districts, 1938*

REGION	DISTRICTS UNDER 55 WEIGHTED ELEMENTARY CLASSROOM UNITS			DISTRICTS OVER 55 WEIGHTED ELEMENTARY CLASSROOM UNITS			ALL DISTRICTS		
	No. of Dis- tricts	No. of Adapta- tions	Mean	No. of Dis- tricts	No. of Adapta- tions	Mean	No. of Dis- tricts	No. of Adapta- tions	Mean
1	23	90	3.91	17	117	6.88	40	207	5.18
2	5	13	2.60	7	38	5.43	12	51	4.25
3	17	58	3.41	8	55	6.88	25	113	4.52
4	16	36	2.25	35	147	4.20	51	183	3.57
5	5	12	2.40	9	57	6.33	14	67	4.93
6	13	37	2.85	3	13	4.33	16	50	3.13
7	17	29	1.71	11	56	5.09	28	85	3.04
8	15	28	1.87	8	39	4.88	23	67	2.91
9	13	23	1.77	4	19	4.75	17	42	2.47
10	12	27	2.25	25	107	4.28	37	133	3.59
11	12	20	1.67	12	58	4.83	24	78	3.25
12	26	76	2.92	35	183	5.23	61	260	4.26
All Regions	174	449	2.58	174	889	5.11	348	1338	3.84

obtained through analysis of variance. We must first check the variance (σ^2) of our region averages against "error variance" or the variance which chance alone might be expected to yield for the number of cases in our sample. This may be done from Table 53 by comparing variance *among* the region averages with variance *within* regions. The variance among region averages is expressed in such a way as to be in terms comparable to the variance of a distribution which might, by chance alone, be expected to have sample means such as these. In other words, the actual variance of the means themselves is not used but the variance of a hypothetical distribution of the number of twelve adaptations in school districts which would tolerate sample means of 5.18, 4.25, and so on, as shown in Table 52.

TABLE 53

*Analysis of Variance of Number of Twelve Innovations in
Twelve Pennsylvania Regions*

348 Pennsylvania School Districts, 1938

SOURCE OF VARIATION: DIFFERENCE BETWEEN	DEGREES OF FREEDOM	SUM OF SQUARES	MEAN SQUARE
Means of regions	11	203.17	18.47**
School districts of same region	336	2017.80	6.01
Total	347	2220.97	—

** Greater than "error variance," 6.01, by more than expected by chance in one case in 100.

This variance may be inferred from the familiar relationship

$$\sigma_M = \frac{\sigma_{dist.}}{\sqrt{N-1}},$$

where σ_M is the standard error of a mean, $\sigma_{dist.}$ is the standard deviation of the distribution and N is the number of cases in the sample.

As may be observed in Table 52, the number of districts in our sample varied from 14 to 61, but this does not matter. A mathematician can make the proper corrections for this. The principle applies, if we think in terms, for the time being, of all regions being represented in our study by samples of the same size. Now, the equation above is an expression of the expected variation, σ_M , of samples of N cases each in a distribution which has a standard deviation of $\sigma_{dist.}$ By algebraic manipulation we may write

$$\sigma_{dist.}^2 = \sigma_M^2(N-1).$$

Now we are thinking in terms of standard deviation *squared*. The statistician calls this *variance*. So we have just written above an expression for the expected variance of a distribution, $\sigma_{dist.}^2$, which has means of samples of N cases each varying to the extent of σ_M . In Table 53 this mean square or variance is 18.47. It is an estimate of the type of distribution one would have if, *because of sampling only*, means were to vary by a standard error of the amount observed. This is furthermore an expression of the variance of our

measure for many school districts which we should have to tolerate, *because of sampling alone*, the fluctuations in averages shown in the last column of Table 52.

In the second line of Table 53 is the variance of this measure among school districts taken about, not the mean of the total distribution, but the respective region means, and pooled. This variance, 6.01, is the "within region" variance or that variance of the number of twelve adaptations *not attributable to such differences as may exist among regions*. It is the variance in our measure due to a multiplicity of causes, unknown for the present, *other than differences among regions*.

It is clear that if the variance among regions is large, as compared with the within region variance, the region means are not of random samples drawn from a homogeneous group of school districts. Differences among region means, were this to be the case, would not, then, be due to chance. The ratio,

$$F = \frac{18.47}{6.01} = 3.07,$$

indicates the degree of correspondence between our two variances.⁴

For the number of cases in our present analysis, an F showing divergence as great as or greater than that shown could occur by chance alone by fewer than once in 100 samples. It appears reasonable, therefore, to conclude that the differences among region averages are probably affected by genuine causes other than chance.

Nothing has been said at this point about degrees of freedom. In Table 53 it will be observed that variance among the twelve regions is represented by eleven degrees of freedom. With twelve region means varying from the total mean of 3.84, one of the twelve means is immediately determined if any eleven means are known. There are thus only eleven degrees of freedom. Furthermore, in inferring a population variance from an observed variance, the proper figure to use is one less than the actual number of cases. Our discussion of degrees of freedom must rest with this brief though inadequate treat-

⁴ Tables of z , which permit the same comparison, appear in Fisher, *op. cit.* The F test developed by Snedecor, and much simpler of computation, has been used in this study. Tables of F appear in Snedecor, *op. cit.*

ment. An explanation in some detail of this statistical concept may be had by referring to the references cited.⁵

We have now seen that regional differences are *significant*. But a complete understanding of the nature of the variance among regions, that is to say, inter-regional variation, involves other considerations. By scanning the two columns in Table 52 showing number of districts in the small class and number of districts in the large class, it may be seen that our sample contains regions with concentrations of large districts, regions with about equal numbers of large and small districts, and some made up predominantly of small districts. *To what extent is inter-regional variance confounded with differences in extent of urbanness?* An examination of the population density map, for example, indicated that the highly urban character of Region I might account in great part for its high mean level of adaptation.⁶ The differences among regions might, if we carried this attack further, prove to be attributable to concentrations of large cities rather than purely to geographical differences. Stating the problem in a different way, communities might be quite alike in extent of adaptation, though remote from each other, if they possess similarities in urbanness.

A fair comparison would require the emancipation of the region means from differences in proportion of large and small districts. In order to break down inter-regional differences into the two components, (1) that attributable to variations among regions, and (2) that attributable to variations within regions because of size, variance is here tabulated as in Table 54.

We now have the same variance among means of regions but we have realized that part of the variance of this measure *among school districts of the same region* is attributable to the fact that some are large and some are of the less adaptable small community type. By actual computation and making use of the first two columns of averages in Table 52, we derive the variance between size classes of school districts within the same region. This is shown in Table 54 in the row of figures with twelve degrees of freedom and a mean square of 49.56. The "error variance" is now the variance of our

⁵ *Ibid.*

⁶ Cf. *supra*, Chapter III, pp. 54 ff.

TABLE 54

*Analysis of Variance of Number of Twelve Innovations by Region and Size Class
348 Pennsylvania School Districts, 1938*

SOURCE OF VARIATION: DIFFERENCES BETWEEN	DEGREES OF FREEDOM	SUM OF SQUARES	MEAN SQUARE
Means of regions	11	203.17	18.47**
School districts of same region and same size class	324	1423.02	4.39
Size classes within regions	12	594.78	49.56**
Total	347	2220.97	—

** Significant variation—more than expected by chance in one case in 100.

measures in the several districts, not about the means of all districts by regions, as shown in the last column of Table 52, but about means of the respective groups of communities classified as to size and region. More concretely, this new error variance, representing 324 degrees of freedom, would be the result, referring again to Table 52, of determining the sums of squares of deviations of the 23 small districts in Region I from the mean of 3.91, the sums of squares of deviations of the 17 large districts in Region I from the mean of 6.88, the five districts in Region II from the mean of 2.60, the seven districts in Region II from the mean of 5.43, and similarly, the other groups in Table 52. The sum of all of these sums of squares of deviations about respective group means would yield 1423.02, which for 324 degrees of freedom, represents a mean square, or variance, of 4.39. This, it may be seen, is the variance of our measure among school districts of the same region and the same size class. It is the variance of schools on our measure not explainable by differences among them in size and in region. This means that communities vary in extent of adaptation, as measures on our twelve-point scale, with a standard deviation of about 2.10 when they are treated as though all were from the same region and all the same size group. The variance between means of regions is 18.47. This latter variance differs significantly from the variance of communities of similar geographic location and size, the new error variance of 4.39. On the whole, we

again see, therefore, that forces other than chance and other than those forces producing *intra-regional differences in communities of the same size*, are operating to produce differences among means of regions.

The variance which is attributable to intra-regional differences *due to size* of districts is 49.56. This also is *highly significant*. It is particularly important to note that the intra-regional variance attributable to size of district is greater than the inter-regional variance, although both are *highly significant*.

The variation of means in Table 52 may be broken up into components in another way. The reader has already wondered, perhaps, if variations among regions are not in great part due to the fact that some regions are more urban and thus contain more large districts than others. Let us then compare means, not for all types of districts, but for districts only within a given size class. These two sets of means appear for the small and the large districts, respectively, in Table 52. In Table 55 the variance of means of regions of groups of communities within a given size class is seen to be 10.69. It is not as great as the variance of means for all districts, 18.47, yet it exceeds 4.39 by enough to be significant. The remaining degree of freedom has to do with variations between small and large districts. The variance due to differences in size groups, large and small, independent of variance between regions, is observed to be 562.68, far greater than any other variance.

This analysis has demonstrated that there are significantly greater

TABLE 55

*Further Analysis of Variance of Means of Large and Small Community
Adaptability by Regions*

SOURCE OF VARIATION; DIFFERENCES BETWEEN	DEGREES OF FREEDOM	SUM OF SQUARES	MEAN SQUARE
All means	23	797.95	—
Means, large and small districts . . .	1	562.68	562.68**
Means of regions of groups of same size class	22	235.27	10.69**

** Significant variation—more than expected by chance in one case in 100.

concentrations of adaptations in some regions than in others. However, *regional differences in adaptability are not nearly so great as differences within regions between large and small districts*. Where regional comparisons in extent of adaptation are made, small schools with small, and large schools with large, the regional differences are less marked as the result of eliminating differences due to size of districts among regions.

Statistical Note 2

Use of Chi-Square in Testing Sample Representativeness⁷

Chi-square has been used in many ways in the present study. Its value and application may be had from an examination of Snedecor and Fisher.⁸ In the present illustration the problem was that of determining whether or not the returns from 347 school districts out of the 508 covered by the questionnaire were not representing certain sections or regions of the state in too great a proportion.

In applying this test, the question is asked: Does our distribution of number of returns by counties in Pennsylvania differ significantly from what might be expected because of chance?

On the whole, the sampling of districts included for study covered all first, second and third class districts in the State and a random one-tenth of the fourth class districts. Our selection of the 508 districts in the above manner automatically eliminated the counties of Cameron, Fulton, Juniata, and Wyoming. Of the 508 districts canvassed, returns were received from 347, or 68 per cent. A hypothetical expected return from each county would, therefore, be 68 per cent of the number sent. Actual returns varied considerably from expected returns on this basis. About eleven returns were expected normally from Bucks County; only three were received. Forty returns were expected from Alleghany, but forty-six were received. Other frequencies were closer, however. Thirteen returns were received from Schuylkill. This agrees closely with an expected return of twelve.

The chi-square for all districts indicates that the chances are 21 in

⁷ Cf. Chapter II, p. 31.

⁸ *Op. cit.* See also Garrett, H. E., *Statistics in Psychology and Education*. New York: Longmans, Green and Company, 1937.

100 of getting, on the basis of chance variations alone, returns as bad as or worse than those actually secured. It may be said, then, that our sample of 344 communities is distributed in counties, and hence regions, in a way not different from what might be reasonably expected as the result of sampling or chance error. There are no marked biases in the number of communities reporting for various sections of the State which cannot be explained by chance.⁹

Statistical Note 3

Concentration of Kindergartens in Three Pennsylvania Regions¹⁰

TABLE 56

Observed and Hypothetical Frequencies of Kindergarten Introduction in Three Pennsylvania Regions During Two Periods

PERIOD INTRODUCED	ACTUAL NUMBER OF KINDERGARTENS	EXPECTED NUMBER (ALL DISTRICTS) ^a	EXPECTED NUMBER (URBAN DISTRICTS) ^b
Up to 1921 . . .	15	10.0	11.0
1922-1937	17	12.0	13.5
Total	32	22.0	24.5

^a Assuming, in these regions, same proportion of state total number of kindergartens as of state total number of districts.

^b Assuming, in these regions, same proportion of state total number of kindergartens as of state total number of urban or large districts only.

There appeared to be an evident concentration of kindergartens in three of the Pennsylvania regions—the Philadelphia Region, the Anthracite Region, and the Pittsburgh Region. As can be seen from Table 56, for the entire period these regions had 32 kindergartens, but on the basis of number of districts in these regions and the assumption of proportional distribution of kindergartens throughout the State, by districts, we would expect only 22. Assuming a pro-

⁹ If the chi-square test had revealed a probability of chance variations in proportion of return as great or greater than that expected in fewer than five cases in one hundred, the sample would then be considered different enough from the total population to be rejected as unrepresentative.

¹⁰ Cf. Chapter III, pp. 59-62.

portional distribution of large or urban districts only, we would expect only 24.5 kindergartens in these three regions compared with 32 actually observed. The chi-square test of significance of variation of observed number of kindergartens in the two periods against expectancy, assuming a distribution in proportion to *all* districts, was 4.58, which for one degree of freedom falls between the one and five per cent points. This would be judged *significant*. The chi-square test of variation of observed number of kindergartens against expectancy, based upon the assumption of proportional distribution in *urban* districts only, was 2.36. This chi-square, with one degree of freedom, falls between the ten and twenty per cent points.

Statistical Note 4

*Regional Concentration of Reorganized High Schools*¹¹

Differences in the diffusion of reorganized high schools in the twelve Pennsylvania regions were subjected to study. The comparisons were made by means of chi-square. It is to be remembered that the larger the chi-square, the greater the difference of the two distributions and the less likely the hypothesis holds of chance or "gun-shot" distribution in terms of some base; that is, the greater the chance that the hypothesis of regional concentration holds true.

As with the kindergarten, it was desired to know whether or not some regions had kindergartens significantly out of proportion to others and vice versa. In this case observed and expected frequencies were calculated for each of the twelve regions. Two periods were considered and two sets of expected frequency were used.

From Table 57 it may be observed that regional divergence from "gun-shot" spread of reorganized high schools in proportion to number of all districts is easily attributable to chance, both in the early period and in the later period. Note, however, that there was a greater divergence in the earlier period; that is to say, there was a greater tendency toward regional concentration prior to 1925 than since, in the diffusion of the reorganized high school.

Other data support the observation that the reorganized high

¹¹ Cf. Chapter III, pp. 62-64.

TABLE 57

Chi-Squares for Early and Late Reorganized High Schools Compared with Hypothetical Distribution in Proportion to Total Number of Districts and in Proportion to Number of Urban or Large Districts, Twelve Pennsylvania Regions^a

PERIOD OF INTRODUCTION OF REORGANIZED HIGH SCHOOL	BASIS OF EXPECTED "NORMAL" DISTRIBUTION	
	All Districts	Large Districts Only ^b
1925 and earlier	14.58	24.98
1926 to date	11.44	33.16

^a The *P*, or probability of chance occurrence of X^2 of 10.341 or greater is 0.50, of 14.631 is 0.20, and of 24.725 is 0.01.

^b Above median of our sample—55 teaching units.

school is not exclusively an *urban* or large school phenomenon. There is a great divergence of the distribution of reorganized high schools from the distribution of urban districts in the twelve regions, for both the early and the late period. That is to say, factors other than urbanness account for regional concentrations of reorganizations. (In each case chi-square was well beyond the one per cent point.) Since a comparison of the distribution of all districts, urban and rural, with the distribution of reorganized high school yields regional concentrations easily explained by chance, it is to be seen that urbanness does not explain this phenomenon adequately. However, the chi-squares (all districts and urban districts) for the early period more nearly agreed than for the later period. This indicates the tendency for the reorganized high school to become even less concentrated in urban centers.

Statistical Note 5

Regional Concentration of Special Classes¹²

The method of treating regional concentration of special classes was somewhat different from that used for the kindergarten, as is explained in Note 3. The nature of the distribution suggested that the best comparison would be concentration of all special classes introduced up to 1925 and up to the present; that is, in the latter

¹² Cf. Chapter III, pp. 64-66.

case, all special classes introduced up to 1937. Chi-squares were found as shown in Table 58.

TABLE 58

Chi-Squares^a of Actual Distribution of Special Classes Against Hypothetical Distributions in Proportion to Total Number of Districts and in Proportion to Number of Large Districts, Twelve Pennsylvania Regions, 1925 and Present

EXTENT OF DIFFUSION AS OF:	BASIS OF EXPECTED DISTRIBUTION	
	All Districts	Large Districts Only
1925	8.37	9.97
1937	16.93	16.26

^a With eleven degrees of freedom may be expected to occur by chance by probability of .50 when 10.34, .20 when 14.63, and .10 when 17.27.

Statistical Note 6

Regional Distribution of Homemaking Classes for Boys¹³

Not many such classes have appeared except in recent years, so geographical distribution was subjected to statistical tests of concentration only for homemaking classes up to the present time, 1937. The chi-square test of the present distribution, based on the hypothesis of diffusion in proportion to the total number of districts, reveals significant regional concentration. The chi-square was 20.02, which for eleven degrees of freedom falls between the one and five per cent points. When the expected proportional distribution is based only upon urban places or the larger school districts, again highly significant disagreement is indicated. Chi-square in this case was even somewhat greater, 25.93, above the one per cent point. In spite of the fact that there appeared to be tendencies toward urbanness in the diffusion of this adaptation, the geographical pattern follows all districts better than urban districts only. Three regions, Numbers III, IV, and V, were found to account for the greatest amount of variation from expectancy. Regions III and V

¹³ Cf. Chapter III, pp. 66-68.

had markedly greater frequencies of homemaking classes than that to be expected from quotas assigned these regions on the basis of the proportion of all school districts in the State which they contained.

Statistical Note 7

Regions and the Distribution of Adult Leisure Classes¹⁴

Chi-square tests were run for the entire period of diffusion up to 1937 for adult leisure classes and for the most recent period from 1933 to 1937 on the distribution of classes according to the twelve regions. These tests showed a slight tendency for the distribution to follow an urban pattern, both for the total period and for the latest period, closer than a random pattern for all districts. For the total period based on all districts the chi-square was 11.78 and on urban districts only, 10.60.

It is to be noted that this test is higher than the tests for the recent period, 1933-37, which for all districts was 9.55, and for urban districts only was 8.71. Since all these tests range closely about the 50 per cent point of probability of occurrence by chance for eleven degrees of freedom, it is not possible to say that regional differences in the diffusion of adult classes are significant.

Statistical Note 8

Regions and the Distribution of Extracurricular Activities Adaptation¹⁵

The introduction of the extracurricular adaptation was subjected to tests of regional variations from "gun-shot" distribution through the period 1925, for the period in 1926-30, and for the period 1931-37. The chi-square tests, based on the assumption of proportional distribution according to all districts, were 5.35, 13.40, and 4.95. Although it might be said that there is a slight tendency in the period 1926-30 for variations in the distribution of this adaptation over and beyond what might be expected by chance or sampling, all of these chi-squares are low.

¹⁴ Cf. Chapter III, pp. 69-70.

¹⁵ Cf. Chapter III, pp. 70-71.

*Statistical Note 9**Regions and the Distribution of the Elimination of
Elementary Final Examinations Adaptation*¹⁶

Variations of distribution of this adaptation from "gun-shot" distribution for the twelve regions showed chi-squares of 13.44 and 21.45 for both the period up to 1929 and the period since 1929, when expectancy was based on the assumption of distribution in proportion to all districts. Similarly, chi-squares based upon proportional distribution of urban districts only were, respectively, 14.57 and 27.94 for the two periods under consideration. These chi-squares are large enough to indicate with high certainty that variations are greater than chance would permit. Hence it may be said that regional differences are significantly greater than proportional distribution of all districts, both large and small.

*Statistical Note 10**Regions and Extensive Reading in the Elementary
Schools*¹⁷

A chi-square comparing the distribution of this adaptation by regions for the period up to 1929 against a random distribution among districts in the State was found to be the very low one of 5.76, meaning that our variations could very easily have occurred by sampling for this period. A slightly higher chi-square was reported for the period 1930-37 on the same basis, 9.35. The chi-squares comparing our distributions with urban districts only were very high. For the early and the late comparisons they were, respectively, 17.36 and 38.82, indicating that the distribution significantly does not follow the large districts. Supplementary reading, therefore, may be said to be an adaptation which does not exhibit noticeable regional variation and also one which does not tend to follow urbanization.

¹⁶ Cf. Chapter III, pp. 70-73.

¹⁷ Cf. Chapter III, pp. 74-76.

*Statistical Note 11**Analysis of Variance and McCall Educational Background Questionnaire¹⁸*

The test appearing in Table 59 was made from returns of the McCall Educational Background Questionnaire on 35 communities involving 1,311 eighth and ninth grade children, an average of over 37 per school district. The community mean scores on children from representative homes were found to vary from 77.73 to 104.44. The extent to which community means significantly varied is indicated by the very high mean square shown in Table 59. This mean square, or variance, of community means is more than ten times the variance of scores within a given community. This enables us to draw two conclusions: first, the McCall questionnaire is discriminating enough to show differences among communities and, second, the type of thing measured by the McCall questionnaire varies significantly among communities.

TABLE 59

Analysis of Variance of McCall Educational Background Questionnaire Scores on 1,311 Eighth and Ninth Grade Children in Thirty-five Pennsylvania Communities

SOURCE OF VARIATION	DEGREES OF FREEDOM	SUM OF SQUARES	MEAN SQUARE
Total	1,310	305,066	—
Between communities	34	66,503	1,956**
Within communities	1,276	238,562	187

Statistical analyses comparing communities with and without the several adaptations were made by a further breakdown of the analysis shown in Table 59. In Table 60 is illustrated the way this analysis appeared for the kindergarten adaptation. In the 48 communities, 15 had kindergarten and 33 did not. As shown in Table 61, the average background score in communities with kindergartens was 94.07, while others averaged 89.55. Table 60 enables us to

¹⁸ Cf. Chapter IV, pp. 85-90.

see the degree to which this difference is significant by comparing the divergence of these two group means with the nature of variance of all means. According to Table 60 there is a significant difference

TABLE 60

Analysis of Variance of Mean Scores on McCall Educational Background Questionnaire in Fifteen Communities with Public Kindergartens and Thirty-three Communities Without Public Kindergartens, Pennsylvania, 1938

SOURCE OF VARIATION	DEGREES OF FREEDOM	SUM OF SQUARES	MEAN SQUARE
Total	47	2,271.92	—
Between communities with and communities without kindergarten	1	210.81	210.81 *
Among communities of same status with respect to kindergartens ..	46	2,061.11	44.81

$$* F = \frac{210.81}{44.81} = 4.70; P_{.05} = 4.05; P_{.01} = 7.21.$$

in the general culture level between communities having and those not having kindergartens. Communities with the higher culture are those with public kindergartens. Similar analyses would appear as in Table 60 for the other adaptations. It is sufficient here, however, merely to summarize the important mean squares which are involved in the test of significance. This is done along with the actual averages compared in Table 61.

Statistical Note 12

Variance and Covariance Analysis—Tax Leeway and Size

Most applications of methods of statistical analysis by variance and covariance have been drawn from studies in the field of biological research. The purpose here is to illustrate the application of both analysis of variance and analysis of covariance to the study of adaptability as we have carried it through in our study.

In planning the field work through which a very important part of the intimate details of operation of factors and processes of

TABLE 61

Analysis of Variance of Mean Scores on McCall Educational Background Questionnaire in Communities With and Communities Without Nine Adaptations, Forty-eight Pennsylvania Communities 1937 and 1938

ADAPTATION	COMMUNITIES WITH ADAPTATION		COMMUNITIES WITHOUT ADAPTATION		MEAN SQUARE BETWEEN GROUPS	MEAN SQUARE WITHIN GROUPS	F ^a
	N	Mean	N	Mean			
Kindergarten	15	94.07	33	89.55	210.81*	44.81	4.70
Reorganized High School	27	93.52	21	87.67	404.51**	40.60	9.96
Special Classes . . .	26	93.08	22	88.45	254.62*	43.85	5.81
Homemaking for Boys	12	92.33	36	90.50	30.25	48.73	.62
Adult Leisure Classes	21	89.81	27	91.85	49.27	48.32	1.02
Extracurricular Activities	28	92.50	20	88.80	159.72	45.92	3.48
Elementary Final Examinations . .	20	93.30	28	89.29	188.00*	45.30	4.15
Integrated Curricula	4	95.00	44	90.59	71.28	47.84	1.49
Supplementary Reading	16	94.38	32	89.25	280.17*	43.30	6.47

* One per cent point at 7.21; five per cent point at 4.05.

adaptability was obtained, time and expense limitations necessitated our covering with careful statistical control only the 36 Pennsylvania school systems. Many of the measures referred to in various chapters were assembled by interview and by schedule obtainable only by visits in the field. Under circumstances of limited sampling, the rigorous tests of Fisher's variance and covariance were essential.

In Table 62 are presented two measures of the 36 school districts grouped in six classes of financial resources of tax leeway, three geographical divisions of the State and two classes of size, large and small. The purpose of our study, it is to be remembered, was to isolate the contributions of various factors upon the adaptability of

TABLE 62

Measures of Adaptability and Percentage of White Collar Workers in Thirty-six Communities Classified by Tax Leeway, Size and Geographical Division

TAX LEE- WAY GROUP	VARIABLE	EASTERN DIVISION		CENTRAL DIVISION		WESTERN DIVISION		TOTAL	MEAN
		Large	Small	Large	Small	Large	Small		
A	Y								
	Adaptability ..	13	23	42	29	15	13	135	22.5
	X								
	Per cent white collar workers	16	16	47	3	10	3	95	15.8
B	Y								
	Adaptability ..	28	20	61	53	40	8	210	35.0
	X								
	Per cent white collar workers	27	8	11	30	41	2	119	19.8
C	Y								
	Adaptability ..	37	21	29	31	50	23	191	31.8
	X								
	Per cent white collar workers	32	29	30	44	33	31	199	33.2
D	Y								
	Adaptability ..	38	26	37	29	33	12	175	29.2
	X								
	Per cent white collar workers	20	9	47	6	24	23	129	21.5
E	Y								
	Adaptability ..	44	26	69	17	30	24	210	35.0
	X								
	Per cent white collar workers	23	14	67	18	42	18	182	30.3
F	Y								
	Adaptability ..	66	62	48	30	84	38	328	54.7
	X								
	Per cent white collar workers	46	39	27	20	35	35	202	33.7
Total	Y								
	Adaptability ..	226	178	286	189	252	118	1,249	34.7
	X								
	Per cent white collar workers	164	115	229	121	185	112	926	25.7
Mean	Y								
	Adaptability ..	37.7	29.7	47.7	31.5	42.0	19.7		
	X								
	Per cent white collar workers	27.3	19.2	38.2	20.2	30.8	18.7		

the public schools. The educational measure throughout was treated, therefore, as the dependent variable.¹⁹

The independent variable selected for illustrative purposes here is the percentage of wage-earning adults, in each community, as determined by questionnaire, engaged in clerical, professional distributive and occupations other than those falling in the unskilled or skilled labor category.

It had been known from earlier studies that the size of the school district and its ability to support schools were factors highly related to the nature of educational service in the community. Hence the groupings in six categories of financial resources or tax leeway. These groupings were made on the basis of property valuation per pupil, local tax rate, amount of state subsidies for education and present expenditure per pupil. Communities in Class F are among the top sixth of communities in the State, of the type sampled in our study, in financial resources. Communities in Class A are among the lowest. Other classes are to be interpreted in order between these two.

Large school systems are those with 55 or more classroom units and small school systems are those with less than 55 classroom units. The three geographical divisions—East, Central, and West—are delineated by means of county lines in a way which about equally divides the State in numbers of school districts into three parts.

AN EXPERIMENTAL DESIGN

The first important feature of the statistical control introduced in our study, as observed in Table 62, is the fact that each of the 36 communities visited made a unique contribution to our sample. No two communities were alike with reference to the three characteristics—tax resources, size, and geographical location.²⁰ Thus our 36 communities represented a carefully controlled representative sample of the large number of school districts we covered by questionnaire.

¹⁹ Determined by application of the survey manual, *A Guide for Self-Appraisal of School Systems*. Other statistical measures appear below.

²⁰ This may be seen in part in terms of geographical distribution in Figure 15, Chapter V, p. 110.

The figures in Table 62 must now be sifted through this pattern of control. The first community represented, with an adaptability score of 13 and 16 per cent of adults in white collar occupations, we notice is lower in both measures than all other communities in the large class in the Eastern division of the State. Other individual variations may be spotted out, but some statistical summary of the entire table is needed.

Our first task is to check the influence of our control classifications upon the variance of the dependent variable, adaptability. This is done for both variables, *X* and *Y*, by the usual methods.²¹ The subdivision of variance in the measure of educational service and the measure of occupational level is shown in Table 63. The six horizontal groupings, A to F in Table 62, and the vertical, size-geographical division groupings, each represent five degrees of freedom. The latter is split between the one degree of freedom between the two size classes and the four degrees of freedom representing the pooled comparison of large systems by three geographical divisions and of small systems by three geographical divisions. The cor-

TABLE 63

Analysis of Variance of Ratings of Schools and Percentage of White Collar Occupations in Thirty-six School Districts

SOURCE OF VARIATION	DEGREES OF FREEDOM	ADAPTABILITY		PER CENT WHITE COLLAR WORKERS	
		Sum of Squares	Variance	Sum of Squares	Variance
Between tax iceway groups	5	3,519.14	703.83**	1,740.55	348.11
Between large and small districts . .	1	2,162.25	2,162.25**	1,469.44	1,469.44**
Between geographical divisions—districts of same size class	4	788.56	197.14	373.78	93.45
Error	25	4,517.69	180.71	4,359.45	174.38
Total	35	10,987.64	313.93	7,943.22	226.95

²¹ See Fisher and Snedecor, *op. cit.* Cf. Statistical Note 1.

responding variances in Table 63 may be tested for significance by the appropriate error variance with twenty-five degrees of freedom.

The ratio F for testing the significance of the adaptability means of classes of financial resources is $703.83/180.71 = 3.89$. For the appropriate number of degrees of freedom the 5 per cent and 1 per cent values of F are 2.60 and 3.86, respectively.²² There is, therefore, a significant variation in school program among the six groups of districts classed according to financial resources. As may be shown by other tests of significance, large school districts and small school districts differ both in school program and in our measure of occupational level. This is indicated in Table 63.

Covariance analysis enables the investigator to answer questions similar to those raised for study by means of partial correlation. Are each of the three factors for which we have taken account by classification, related to the dependent measure, adaptability, when the effects of the independent measure are removed? Would the independent measure, per cent of white collar workers, have been related to adaptability had all districts been of similar size, geographical location, and financial resources?

Complete information from the 36 school districts for answering such questions appears in Table 64. It will be observed that by analysis of variance we have reduced the sum of squares of the dependent measure from 10,987.64 to 4,517.69 by means of our experimental control. We may also reduce the total sum of squares in the dependent measure to 7,160.03, only by its regression on the measure of occupational level.

The correlation between school rating and occupational level without reference to groupings is .5902. The within group correlation between the two measures is seen to be .3756, which is marked but not statistically significant for twenty-four degrees of freedom. The regression based upon error variance permits a reduction of sums of squares in Y to 3,880.46. The corresponding mean square, 161.69, when compared with the error variance, 180.71, in Table 63, indicates the extent of net contribution of the independent variable upon the dependent variable, *other factors considered*.

²² Cf. tables in Snedecor, George W. *Statistical Methods Applied to Experiments in Agriculture and Biology*, pp. 174-177. Ames, Iowa: Collegiate Press, Inc., 1937.

TABLE 64

*Analysis of Variance and Covariance, Total Adaptability and Percentage of White Collar Workers,
Thirty-six Pennsylvania Communities*

SOURCE OF VARIATION	DEGREES FREEDOM	SUMS OF SQUARES AND PRODUCTS			COEFFICIENT CORRELATION	ERRORS OF ESTIMATE		
		SY ² (1)	SXY (2)	SX ² (3)		Sum of Squares (5)	Degrees Freedom (6)	Mean Square (7)
Total	35	10,987.64	5,513.94	7,943.22	.5902	7,160.03	34	210.59
Leeway groups	5	3,519.14	1,685.44	1,740.55				
Size of classes	1	2,162.25	1,782.50	1,469.44				
Districts same size	4	788.56	379.27	373.78				
Error	25	4,517.69	1,666.73	4,359.45	.3756	3,880.46	24	161.69
Leeway + Error	30	8,036.83	3,352.17	6,100.00		6,194.69	29	213.61
Difference for Testing Leeway Means						2,314.23	5	462.85*
Size + Error	26	6,679.94	3,449.23	5,828.89		4,638.87	25	185.55
Difference for Testing Size Means						758.41	1	758.41*
Districts + Error	29	5,306.25	2,046.00	4,733.23		4,421.84	28	157.92
Difference for Testing Districts Same Size ...						541.38	4	135.35

* *F* test shows *P* above .05 but less than .01.

Perhaps the most important information in Table 64 is what it shows of the changes upon the significant variances in adaptability, shown in Table 63, when corrections or adjustments are made for the second variable, per cent white collar workers. We noticed particularly in Table 63 the very significant variance of 703.83 between tax leeway groups. Removing the effects of the occupational measure upon adaptability and recomputing variances finds us with a between leeway means variance of 462.85. This is shown in Table 64. This variance is still above the .05 point of significance but is greatly reduced. In other words, differences in educational adaptability among communities of different tax leeway are partly explained by the differences among these communities in occupational characteristics. This explanation, however, is not complete and adequate, for after proper allowances for differences among communities in occupational characteristics, there still remain significant differences among leeway groups in average adaptability.

Similarly, difference in adaptability between large and small school systems is partly attributable to the occupation measure. The variance of 2,162.25 from Table 63 becomes 758.41, as shown in Table 64, after adjustments for the independent variable. Size persists as a factor influencing adaptability, however, even after this reduction has been made. Difference in adaptability among geographical divisions is negligible in either case.

A summary tabulation of results of this technique applied to several measures appears in Table 64.

Statistical Note 13

Statistical Analysis of Adaptability by Community Types²³

Analysis of variance of adaptability among communities, classified into geographical isolation groupings, appears in Table 65.

From this table it may be seen that the variance between means of groupings is very small compared with within-group variance. When averages of the adaptability ratings and communities grouped according to the other character classifications are examined, however, significant differences are found. This analysis is shown in Table 66.

²³ Cf. Chapter V, pp. 109-124.

TABLE 65

Analysis of Variance of Adaptability According to Community Geographical Isolation Groupings^a

SOURCE OF VARIATION	DEGREES OF FREEDOM	SUM OF SQUARES	MEAN SQUARE
Total	35	10,987.64	—
Between means of groupings	2	17.33	8.67
Communities within groupings	33	10,970.31	232.43

^a Isolated, semi-isolated, and suburban.

Several measurable factors investigated in the present study were each subjected to analysis, as shown in Table 66, as a basis for attempting to explain possible causes of community differences. The basis of classification in Table 65 proved not to be significant, and analyses were therefore not carried through for communities grouped as to isolation.

TABLE 66

Analysis of Variance of Adaptability According to Community Character Classifications^a

SOURCE OF VARIATION	DEGREES OF FREEDOM	SUM OF SQUARES	MEAN SQUARE
Total	35	10,987.64	—
Between means of classifications	3	3,424.28	1,141.43**
Communities within classifications	32	7,563.36	236.36

^a Rural, industrial, residential, and composite units.

Following is an illustration of how covariance analysis was used to observe the concomitant variation of adaptability and certain other measurable factors. In our illustration we are taking the measure, percentage of adults engaged in white collar occupations. The variation in this measure among the four classes of communities is shown, along with variation in adaptability, in Table 67.

As shown before, the adaptability variations are significantly different and, as may be seen by examining Table 68, the averages of

TABLE 67

Distribution of Adaptability of Public Schools and Occupational Level of Thirty-six Communities by Community Type

COMMUNITY TYPE	N	ADAPTABILITY RATING OF SCHOOL		PERCENTAGE WHITE COLLAR OCCUPATIONS	
		ΣY	Mean	ΣX	Mean
Rural-farm	7	132	18.9	74	10.6
Industrial	10	295	29.5	219	21.9
Residential	5	220	44.0	156	31.2
Composite	14	602	43.0	477	34.1
Total	36	1249	34.7	926	25.7

our occupational measure also vary significantly. In Table 68 we submit analysis of variance of the two measures together.

TABLE 68

Analysis of Variance of Adaptability and Percentage of White Collar Occupations in Thirty-six Communities by Community Type

SOURCE OF VARIATION	DEGREES OF FREE- DOM	ADAPTABILITY		PERCENTAGE WHITE COLLAR OCCUPATIONS	
		Sum of Squares	Variance	Sum of Squares	Variance
Between type means	3	3,424.28	1,141.43**	2,878.88	959.63**
Within types ..	32	7,563.36	236.36	5,064.34	158.26
Total	35	10,987.64		7,943.22	

We now wish to observe how the two measures vary together. This is done by covariance analysis. For this purpose we need the various sets of products, as shown in Table 69. In this table, Y , the dependent variable, is the adaptability measure, and X , the independent variable, is the measure of percentage of white collar workers.

By simple computations it is possible to compute coefficients of correlation for the three rows of Table 69. In the first row, with

TABLE 69

Analysis of Covariance of Adaptability and Percentage of White Collar Occupations in Thirty-six Communities by Community Type

SOURCE OF VARIATION	DEGREES OF FREEDOM	SUMS OF SQUARES AND PRODUCTS			ERRORS OF ESTIMATE		
		ΣX^2 ^a	ΣXY	ΣY^2 ^b	Sum of Squares	Degrees of Freedom	Variance
Total	35	7,943.22	5,513.94	10,987.64	7,160.03	34	—
Between types . . .	3	2,878.88	3,103.87	3,424.28	77.84	2	38.92
Within types . . .	32	5,064.34	2,410.07	7,563.36	6,416.43	31	206.98
For test of adjusted means . . .					743.60	3	247.87
Total correlation = .590		Within-group correlation = .389					

^a Percentage of white collar workers.

^b Adaptability measure.

thirty-five degrees of freedom, we find a total correlation of .590. This represents the plain over-all zero-order correlation of adaptability with the occupational measure.²⁴

The within-group correlation found from data in the third row, with thirty-two degrees of freedom, was .389. This is the statistical estimate of the relationship between x and y , had all communities been of the same type. The within group regression and correlation coefficients have special value in our analysis.²⁵

We may see from an examination of Table 69 that by ruling out the influence of the occupation measure, variance in adaptability has been reduced from 314 to 211 by regression, without allowing for differences among community types. This allowance results in further reduction of variance, yielding a within-group residual variance

²⁴ The formula used to obtain correlations from the sum of squares and sum of products in Table 69 is as follows:

$$r_{xy} = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \cdot \Sigma y^2}}$$

²⁵ Cf. Rider, *op. cit.*, and Snedecor, *op. cit.*

of approximately 207. Evidently there is little to categories of classification which we have used that is not accounted for by the occupation measure. This may be verified by testing the significance of differences among adaptability averages of groups as they would be with the influence of occupational level removed. The proper mean square or variance for making this test is 247.87, as indicated in Table 69. The residual variance of 207 now becomes the "error variance" with which the test is to be made.

As may be seen from Table 69, the averages adjusted by regression vary little more than the error variance with which comparison is to be made. It appears, therefore, that *differences among communities in occupational level tend to explain the association between adaptability and community type*, for prior to allowances for occupational differences, there is a significant variation among community types in adaptability, while after adjustments are made for differences in occupational level, community type differences in adaptability are insignificant. The inference is that had communities been of the same occupational level, there would have been no significant variation among community types in adaptability.

A summary tabulation of *F* tests of all measures, analyzed as above, appears in Table 70 along with correlation coefficients and similar data derived from analysis of variance and covariance of the same measures when examined according to tax leeway, size, and geographical distribution categories.²⁰

Statistical Note 14

Summary of Variance and Covariance Analysis

For special purposes, analysis of variance has been used to test significance as referred to in the text and in the statistical notes above. Also, in certain cases, tests using chi-square were found useful. These have been reported. Aside from such special tests, the majority of tests of significance followed the pattern of grouping communities according to size, tax leeway, and community type. It consequently is possible to summarize the results of most of the analyses of variance and covariance such as those illustrated in Statistical Notes 12 and 13. This is done in Table 70.

²⁰ Cf. *infra*, p. 465.

TABLE 70

*Summary of Statistical Treatment of Measures Related to Adaptability
in Thirty-six Communities*

MEASURES	CORRELATION WITH ADAPTABILITY			F TESTS OF MEANS			F TESTS OF ADJUSTED ADAPTABILITY MEANS		
	Total	With- in Size- leeway Group	With- in Type Group	Lee- way Groups	Size Class- es	Com- mu- nity Types	Lee- way Groups	Size Class- es	Com- mu- nity Types
Degrees of Freedom	34	24	31	5×25	1×25	3×32	5×24	1×24	3×31
Level of significance at 1% . .	.418	.496	.449	3.86	7.77	4.46	3.90 ^a	7.82 ^b	4.49 ^a
Level of significance at 5% . .	.325	.388	.349	2.60	4.24	2.90	2.62	4.26	2.91
B. STRUCTURE ECONOMIC									
(Composite) ^d . . . . .	.554	.104	.457	29.58	10.55	1.81	1.26	6.68	2.83
1. Size, 1937 . . . . .	.434	.116	.283	(h)	18.80	2.46	3.31	4.84	2.91
2. Wealth, 1937 . . . . .	.300	-.195	.361	9.57	1.23	(h)	2.71	10.01	5.39
3. Wealth, 1930 . . . . .	.283	-.284	.276	8.60	(h)	(h)	3.41	11.73	4.62
4. Wealth, 1927 . . . . .	.108	-.336	.112	2.70	(h)	(h)	4.59	11.00	4.69
5. Tax leeway, 1930 . . . . .	.217	-.350	.223	8.23	(h)	(h)	4.05	10.70	4.72
6. Tax leeway, 1937 . . . . .	.245	-.252	.317	9.78	2.66	(h)	3.07	8.61	5.36
7. Per cent state aid	-.364	-.083	-.217	5.95	2.42	1.64	2.76	9.78	3.33
8. Tax rate, education, 1937 . .	-.324	-.092	-.334	9.27	(h)	(h)	1.97	11.77	4.79
9. Tax rate, other, 1937 . . .	.091	.112	-.128	4.93	13.70	3.95	3.32	5.82	4.80
10. Tax rate, total	-.127	-.017	-.269	7.09	6.73	1.73	2.36	9.29	5.59
11. Total expenditure, 1937 . .	.440	.153	.388	1.94	1.04	1.41	2.66	10.29	3.92
12. Current expenditure, 1937 .	.408	.011	.436	3.87	(h)	(h)	2.36	11.25	5.12
13. Per cent current expense of total	-.233	-.075	-.066	(h)	(h)	1.83	3.69	10.90	3.93
14. Expenditure increase . . .	-.221	.057	-.180	2.50	(h)	(h)	3.15	11.60	4.42
15. Current expenditure, 1930 .	.407	-.014	.379	5.46	(h)	1.01	2.20	11.37	4.29
16. Financial obstacles	-.159	.376	-.149	4.17	(h)	1.77	5.08	13.97	4.63
17. Tax leeway, 1930-37 . . .	-.006	.259	.144	(h)	(h)	(h)	4.35	13.55	4.99
18. Expenditure change index .	-.181	.008	-.063	1.92	(h)	(h)	3.37	11.20	4.25
19. Current expense per W.E.C.U., 1935 . . . . .	.587	.175	.503	2.07	6.71	2.58	2.46	7.05	2.83
C. STRUCTURE PROFESSIONAL									
(Composite) ^e . . . . .	.610	.299	.489	4.11	3.31	5.31	1.33	7.91	2.01
1. Attitude mean . . . . .	.401	.375	.477	(h)	(h)	(h)	3.21	13.66	5.96
2. Top attitude . . . . .	.518	.398	.540	(h)	(h)	(h)	2.76	10.64	5.16
3. Experimentation . . . . .	.320	.234	.188	1.12	(h)	2.50	3.31	9.80	3.63
4. Awareness, initiative . . .	-.003	-.047	.037	1.36	1.21	1.15	3.60	10.65	4.70
5. Success—personal . . . . .	.219	.170	.104	1.95	(h)	3.16	2.87	11.65	4.12
6. Success—negative	-.096	.105	-.119	(h)	(h)	(h)	3.45	10.34	4.74
7. Success—resignation . . .	.256	.137	.147	1.52	1.05	1.47	3.36	10.34	3.98
8. Success—personality . . .	-.055	.049	-.134	(h)	(h)	2.39	3.61	11.20	4.89
9. Originality . . . . .	.292	.222	.247	3.52	(h)	(h)	3.22	11.61	4.29
10. Change needed . . . . .	.137	.086	.079	1.35	(h)	2.09	3.41	11.04	4.49
11. Obstacles	-.088	-.058	.000	1.31	(h)	(h)	3.72	11.09	4.56
12. Sex . . . . .	.118	-.238	-.147	2.01	(h)	3.02	4.25	13.06	4.80
13. Marital status . . . . .	.008	.055	-.214	(h)	(h)	1.79	3.74	10.74	5.40
15. Turnover	-.176	.111	-.011	1.28	1.28	1.36	3.81	11.89	4.22

TABLE 70 (Continued)

MEASURES	CORRELATION WITH ADAPTABILITY			F TESTS OF MEANS			F TESTS OF ADJUSTED ADAPTABILITY MEANS		
	Total	With- in Size- leeway Group	With- in Type Group	Lee- way Groups	Size- Class- es	Com- mu- nity Types	Lee- way Groups	Size- Class- es	Com- mu- nity Types
16. Age .....	.339	-.025	.115	2.04	9.30	4.18	3.60	8.75	3.13
18. Training over high school ..	.459	.029	.278	6.38	13.12	5.68	2.58	7.10	2.50
19. Per cent postgraduate ..	.373	.024	.124	2.79	8.67	5.46	2.90	8.18	2.80
20. Outside experience .....	.367	.058	.218	1.84	(h)	4.69	2.54	11.29	3.30
21. Age Q_1 .....	.270	-.063	-.035	1.14	5.26	5.62	3.71	10.34	3.60
22. Age Q_3 .....	.188	-.094	-.055	(h)	4.32	3.83	3.81	11.02	4.19
23. Inbreeding	-.232	-.154	-.283	1.79	1.65	2.21	2.76	12.34	5.11
D. THE CULTURE PATTERN									
(Composite) ^a .....	.687	.348	.514	4.07	22.47	10.74	1.65	1.88	(h)
1. McCall mean .....	.509	.223	.283	2.07	5.09	9.42	2.23	7.34	1.76
2a. McCall over Q_3 .....	.560	.257	.341	2.32	7.89	8.00	1.99	5.85	1.33
2b. McCall P_{90} .....	.454	.190	.165	1.57	6.71	7.81	2.58	6.92	1.92
3. Parent attitude mean ..	.422	.036	.372	1.98	6.88	2.36	3.17	8.54	3.99
4. Parent attitude over Q_3 ..	.500	.219	.392	2.54	4.30	1.88	2.63	7.77	2.97
5. Community opposition ..	.204	.223	.314	(h)	(h)	(h)	3.73	12.16	5.62
6. Population over 21 .....	.462	.184	.154	(h)	5.73	11.10	3.14	7.37	1.76
7. Home ownership .....	.403	.116	.237	(h)	5.80	2.09	3.09	8.00	2.98
8a. Eighth grade .....	.536	.269	.283	2.37	8.10	9.62	2.68	5.67	1.29
8b. College graduates .....	.511	.273	.295	3.15	4.64	4.64	2.39	6.21	1.82
9. Community pride .....	.087	-.044	.033	1.00	(h)	5.15	3.72	11.53	4.58
10. Nativity	-.191	-.193	-.356	(h)	(h)	(h)	3.42	11.85	6.23
11. Population change .....	.301	.342	.290	1.07	(h)	2.28	3.14	13.88	4.57
12a. Unskilled labor	-.510	-.293	-.293	1.52	5.44	7.37	2.70	6.65	1.82
12b. White collar .....	.590	.376	.389	2.00	8.43	6.06	2.86	4.69	1.20
13. Parochial	-.168	-.224	-.188	(h)	(h)	1.69	3.92	10.37	4.79
14. Community obstacles ...	.029	.018	.118	1.29	(h)	(h)	3.70	11.46	4.87
15. School esteem .....	.416	.170	.533	1.50	1.69	1.49	2.88	9.71	7.00
E. SCHOOL ADMINISTRATION									
(Composite) ^a .....	.732	.583	.592	3.18	16.49	7.34	2.88	1.04	(h)
1. Needed change, total ...	.104	-.096	.023	1.56	2.20	1.57	3.77	11.55	4.52
2. Second level lag, total ..	.947	.877	.927	4.66	13.54	6.06	(h)	(h)	(h)
3. Administrative obstacles, total	-.024	-.407	-.155	1.09	(h)	6.99	5.34	13.12	5.04
5. Public relations, total ...	.395	.252	.298	1.04	1.41	2.57	3.41	9.69	3.57
6. Source of ideas, total ...	-.190	-.191	-.049	1.48	4.51	(h)	3.98	7.87	4.17
10. Outside ideas, total .....	.372	.006	.142	1.95	8.33	5.38	3.31	8.53	2.86
11. Pupil-teacher ratio, 1937 ..	-.194	.164	-.101	1.36	(h)	(h)	3.75	11.14	4.26

^a The F 's reported in this column should be compared with the 1% and 5% points of significance and 3.89 which is the F test of leeway group adaptability means *unadjusted* with 5×25 degrees of freedom.

^b Compare F 's in this column with 1% and 5% points of significance and F tests of *unadjusted* adaptability means of 11.97 with 1×25 degrees of freedom.

^c Compare F 's in this column with 1% and 5% points of significance and F tests of *unadjusted* adaptability means of 4.83 with 3×32 degrees of freedom.

^d ^e Composite made up of selected measures, see *infra*, pp. 473 ff.

^b F test less than 1.00.

The various measures reported in Table 70 are as follows:

- A. ADAPTABILITY. (Scores from *A Guide for Self-Appraisal of School Systems*.)
- B. ECONOMIC
1. *Size, 1937*. Average daily attendance reported for the school year 1937-1938 in hundreds.
 2. *Wealth, 1937*. Estimated valuation of taxable real property per pupil in average daily attendance—in hundreds of dollars for the school year 1937-1938.
 3. *Wealth, 1930*. Estimated valuation of taxable real property per pupil in average daily attendance—in hundreds of dollars for the school year 1930-1931.
 4. *Wealth, 1927*. Property valuation per classroom unit in thousands of dollars. From 1927 report of state subsidies.²⁷
 5. *Tax Leeway, 1930*. Theoretical yield of difference between present total tax rate on property and 50 mills on full valuation of property for the year 1930-1931—per pupil in tens of dollars.
 6. *Tax Leeway, 1937*. Theoretical yield of difference between present total tax rate on property and 50 mills on full valuation of property for the year 1937-1938—per pupil in tens of dollars.
 7. *Per Cent State Aid*. Percentage ratio of subsidies received from the state and total current expense for schools.
 8. *Tax Rate, Education, 1937*. Tax rate for the year 1937-1938 for schools on estimated true valuation of property—in mills.
 9. *Tax Rate, Other, 1937*. Tax rate for purposes other than education on estimated true valuation of property.
 10. *Tax Rate, Total*. Tax rate on estimated true valuation of property for all purposes.
 11. *Total Expenditure, 1937*. Expenditure per pupil for all educational purposes during school year 1937-1938—in dollars.
 12. *Current Expenditure, 1937*. Current expense for 1937-1938 per pupil in average daily attendance.
 13. *Per Cent Current Expense of Total*. Percentage ratio of current expense to total expenditure for year 1937-1938.
 14. *Increase in Expenditure, 1930-1937*. Average annual change in expenditure from school year 1930-1931 to school year 1937-1938 per pupil in average daily attendance—in dollars.
 15. *Current Expenditure, 1930*. Current expense for 1930-1931 per pupil in average daily attendance.
 16. *Financial Obstacles*. Percentage of obstacles to change in the school program in response to questionnaire which referred specifically to insufficient funds or inadequate finance.

²⁷ Cf. Mort, Paul R., *op. cit.*

17. *Tax Leeway, 1930-1937.* Difference between 1937 tax leeway and 1930 tax leeway per pupil in dollars.
18. *Expenditure Change Index.* Average annual percentage ratio of expenditure of any one year to expenditure of previous year—on per pupil basis during period 1930-1937.

C. PROFESSIONAL.

1. *Teacher Attitude Mean.* Average score of teachers in each community on the poll of opinion, *What Should Our Schools Do?*
2. *Top Attitude of Teachers.* Percentage of teachers in each community with opinion scores on the poll of opinion exceeding the third quartile point of norms based on all teachers covered in this study in the state. This represents the proportion of teachers with highest sentiments regarding adaptability for the schools as measured by the poll.
3. *Teacher Experimentation.* The percentage of teachers listing changes or experiments in reply to the question, "Have you recently undertaken any experiments or made changes in your work? Please list briefly."
4. *Teacher Initiative.* Percentage of teachers in each community sufficiently conscious of the needs in their work to list items in response to the question, "What are some of the changes or new things which you would like to do in your work?"
5. *Success—Adaptability and Individual Teacher Initiative.* By questionnaire, teachers were asked the following question: "As you see it what are the rules for success for a teacher in your community?" This measure is the percentage ratio to the total number of rules for success listed by teachers of those rules which indicated personal initiative, adaptability, inventiveness and similar qualities—in tenths of a per cent.
6. *Success—Negative.* From replies to question quoted in No. 5 above. Percentage ratio to total of the number of items listed by teachers of a type not constructive or conducive to the best working professional relationships of teachers to pupils, administrators, or the community.
7. *Success—Resignation.* From questionnaire as in No. 5 above. Percentage ratio to total of the number of replies to the question of success rules which suggested resignation to the restrictions and pressures of the profession and represented a willingness to conform to the pattern thus imposed—in tenths of a per cent.
8. *Success—Personality.* From questionnaire as in No. 5 above. This measure was the percentage ratio of the number of those items listed by teachers from a given community which referred to personality qualities to the total number of items listed by these teachers.

9. *Teacher Originality.* Teachers were asked the question, "Where did you get the ideas for changes you have made or would like to make in your work?" Some of the replies to this question represented the experience and experimentation of the teacher himself as the direct source of the idea. The percentage of all sources of ideas listed which were of the source-within-the-experience-of-the-teacher type yielded this measure.
10. *Personnel Change Needed.* From a questionnaire question, "What are some of the things which you think should be done for the school system as a whole?" Among other things many replies to this question had to do with personnel, training, qualifications, professional interest, etc. The percentage of all items listed in reply to the question which related to personnel became the measures used here of the degree to which teachers themselves believe changes are needed in teaching personnel.
11. *Personnel as Obstacle.* A follow-up to the question noted in No. 10 was the question, "What in your opinion have been the chief obstacles in the way of making these changes?" A good number of replies concerned the teaching staff as obstructing progress. The percentage of all items listed which concerned teaching personnel was this measure.
12. *Sex of Teachers.* Percentage ratio of number of men teachers to total number of teachers.
13. *Marital Status.* Per cent of women teachers not married.
15. *Teacher Turnover.* Percentage of teachers replaced in school year 1937-1938—in hundredths of a per cent.
16. *Age of Teachers.* Median age of all teachers in the district.
18. *Training Above High School.* Median years training above high school of teachers—in tenths of a year.
19. *Per Cent Postgraduate.* Percentage of teachers with training beyond the bachelor's degree or its equivalent.
20. *Outside Experience.* Percentage of teachers who have had teaching experience outside of the district in which now teaching.
21. *Age—First Quartile.* The first quartile point of the age distribution of teachers.
22. *Age—Third Quartile.* The third quartile point of the age distribution of teachers.
23. *Inbreeding.* Percentage of teachers whose residence had been in the district in which now employed before engaged by the district.

D. COMMUNITY

1. *McCall Mean.* Average score of sampling of school children on McCall Educational Background Questionnaire.

- 2a. *Top McCall*. Percentage of sampling of homes reached through McCall Educational Background Questionnaire which reveal high culture level by exceeding the third percentile point of all scores covered in the state.
- 2b. *Highest McCall*. Percentage of sample of homes by McCall questionnaire exceeding the 90th percentile for all scores in the state—in tenths of a per cent.
3. *Parent Attitude Mean*. Average score of sampling of parents on questionnaire, *What Should Our Schools Do?*
4. *Top Attitude of Parents*. Percentage of parents exceeding the third quartile norm for all parents.
5. *Community Opposition*. Percentage of teachers reporting by questionnaire instances of community opposition to work of the schools.
6. *Population Over 21*. Percentage of adult population over 21 years of age.
7. *Home Ownership*. Percentage of adults sampled by questionnaire who report owning their own homes.
- 8a. *Eighth Grade*. Percentage of adults sampled by questionnaire who reported having completed eight years or more of schooling.
- 8b. *College Graduates*. Percentage of adults sampled by questionnaire who reported having graduated from college.
9. *Community Pride*. Based on replies of sampling of adults by questionnaire to question: Do you think your community is as good a place to live in as any other? The measure used was the per cent of affirmative answers to this question.
10. *Nativity*. Percentage of adults covered in sample by questionnaire who reported having been born in the community in which now living.
11. *Population Change*. Percentage ratio of 1930 to 1920 population as reported in the United States Census of Population.
- 12a. *Unskilled Labor*. Percentage of employed adults reporting on questionnaire to sample of adults engaged in unskilled labor.
- 12b. *White Collar Workers*. Percentage of employed adults reporting on questionnaire engaged in clerical, distributive, professional, and other white collar occupations.
13. *Parochial Schools*. Percentage ratio of parochial school enrollment to public school enrollment.
14. *Community Obstacles*. Percentage of items listed as obstacles to needed changes by teachers which had to do with obstructions or obstacles within the life of the community.
15. *School Esteem*. Based on replies in questionnaire to sampling of adults to the question, "What are the main advantages of your community?" This measure is the percentage of respondents who listed "the schools" in reply to this question.

E. ADMINISTRATION

1. *Needed Change*. From reports of teachers on question as to changes they thought needed in the school system. This measure is the percentage of all needs which were related to administration.
2. *Administrative Adaptability*. Based on scores on administration sections of *A Guide for Self-Appraisal of School Systems*. Covers supervision and school organization, school administration and the community, the school plant and business management.
3. *Administrative Obstacles*. Percentage of items listed as obstacles to needed changes by teachers which had to do with obstructions or obstacles of administration itself.
5. *Public Relations Index*. From question to sampling of adults by questionnaire, "How or through what means do you learn what the schools are doing?" The index is the percentage of "means" reported which represent effort on the part of the school system or some means other than chance or word of mouth.
6. *Source of Ideas*. From replies to question in questionnaire to teachers, "Where did you get the ideas for changes you have made or would like to make in your work?" This measure is the percentage of such sources of ideas as may be classed with the supervisory or administrative leaders of the school system.
10. *Outside Ideas*. From same source as previous item. The present measure represents the percentage of sources of ideas outside the community.
11. *Pupil-Teacher Ratio*. Ratio of number of pupils in average daily attendance in 1937 to total number of teachers employed for the same year.

In the first row of Table 70 the degrees of freedom are reported which pertain to all of the statistics in the respective columns. In the first column, for example, zero-order correlations of adaptability, with respective measures based on 36 cases, involve thirty-four degrees of freedom. In the last six columns, where reference is made to *F* tests, the degrees of freedom for the variance of the means and the degrees of freedom for the error variance are both reported. Thus in testing the means of leeway groups, all the way through five degrees of freedom represented the variance among the six groups of means. The error variance had twenty-five degrees of freedom.

The first two rows present the critical levels of significance with which all figures in the several columns are to be compared. In the first column, showing the correlation of measures with adaptability, we see that with the given degrees of freedom, 34, a correlation may

be expected once in a hundred times as high as .418, and five times in one hundred as great as .325. All correlations in the first column exceeding .325 are to be judged *significant*, and those exceeding .418 *highly significant*. The other figures in these two rows may be interpreted in the same way. In the last column, for example, any *F* test exceeding 4.49 would indicate that community type adaptability averages vary, *after effects of the particular measure are eliminated*, to a *highly significant* degree. The *F* tests in the last three columns, it is to be noted, should in each case be compared with the *F* tests of adaptability, *without adjustment for the influences of particular measures*. It is to be recalled that the variation among tax leeway means, size class means, and community type means on adaptability was *significant*, as indicated by the *F* tests to be had from Table 63 (page 457).

We are particularly interested, therefore, in the *F* tests in the last three columns which fall below the one per cent or five per cent points of significance, for these *F* tests indicate to us measures which explain the effects upon adaptability of tax leeway, size, or community type, as the case may be. Knowing that adaptability varies significantly according to these classifications, we ask the question: If they had all been the same as to size, wealth, or attitude mean, or as to any particular one of the measures for which we might have concern, would adaptability then have varied significantly? When the answer is still in the affirmative, as may be observed from the last three columns of Table 70, we reject the possibility of the particular measure having much to do with the tests of significance initially observed. If the answer is in the negative, then we say that it is quite likely that the significant variation among groups of communities in adaptability is partly attributable to differences among these groups in the particular measure in question and its concomitant effects upon adaptability.

A codification in Table 71 indicates the classification of the thirty-six districts as to size, tax leeway, and geographical division and community type classifications. All computations in Table 70 may be reproduced by means of the codification in Table 71 and the summary of measures in Table 72. In Table 72 the composite indices are shown.

TABLE 71

Codification of Thirty-six Communities According to Size, Tax Leeway, and Geographical Division Classifications^a

GEOGRAPHICAL DIVISION AND SIZE	TAX LEEWAY GROUPINGS					
	A	B	C	D	E	F
Eastern Division						
Large	(1) In	(2) Re	(3) Co	(4) Co	(5) Co	(6) Re
Small	(7) In	(8) Ru	(9) In	(10) Re	(11) Ru	(12) Re
Central Division						
Large	(13) Co	(14) Co	(15) Co	(16) Co	(17) Co	(18) Co
Small	(19) In	(20) Co	(21) Co	(22) Ru	(23) In	(24) In
Western Division						
Large	(25) In	(26) In	(27) Co	(28) Co	(29) Co	(30) In
Small	(31) Ru	(32) Ru	(33) In	(34) Ru	(35) Ru	(36) Re

^a Community types indicated by symbols: rural (Ru), industrial (In), residential (Re), and composite (Co). Numbers refer to communities in Table 72.

COMPOSITE INDICES

For studying the combined relationship of several measures in each of the four categories, economic, professional, cultural, and administration, four composite indices were constructed. This was done by first throwing all measures selected into standard units based on the normal curve. By this means all distributions were rectified so that the measure employed was comparable for all units. In addition to ironing out great irregularities in distributions, this new score permitted direct averaging of measures to produce the composite index. The composite indices were therefore averages of the several measures employed, each weighted equally after first expressing in simplified standard units based on the normal curve.

The standard scale was a ten-point scale defined as in Table 73. The thirty-six communities were ranked on the measure in question. As may be seen in Table 73, the highest in rank would receive a score of 10, the next two scores of 9, the next three scores of 8, and so on down to the last community which would receive a score of 1. If the measure was negatively related to adaptability, such as per cent

[Continued on page 479]

TABLE 72
Summary of Statistical Measures Used in Analysis of Variance and Covariance
in Thirty-six Communities^a

MEASURE	COMMUNITY NUMBER ^b											
	1	2	3	4	5	6	7	8	9	10	11	12
A. ADAPTABILITY ^a	13	28	37	38	44	66	23	20	21	26	26	62
B. STRUCTURE ECONOMIC ^d ...	3.8	5.2	5.6	5.8	7.4	8.6	3.2	3.6	4.8	5.2	5.6	6.4
1. Size, 1937	21	45	14	20	22	16	15	4	12	11	4	14
2. Wealth, 1937	20	23	42	63	74	168	15	22	40	46	82	97
3. Wealth, 1930	21	33	45	64	135	221	25	34	80	66	80	108
4. Wealth, 1927	102	68	114	184	244	466	37	88	182	153	212	297
5. Tax leeway, 1930	2	4	16	22	50	77	5	10	16	21	25	38
6. Tax leeway, 1937	4	1	14	22	26	59	0	7	3	14	28	36
7. Per cent state aid	39	26	17	18	14	10	30	58	15	26	18	17
8. Tax rate, education, 1937	19	27	10	8	9	8	38	10	26	13	10	11
9. Tax rate, other, 1937 ...	11	21	6	7	6	7	15	7	17	6	5	2
10. Tax rate, total	30	48	16	15	15	15	53	17	43	19	15	13
11. Total expenditure, 1937 ..	59	150	82	72	164	246	97	76	120	98	122	149
12. Current expenditure, 1937 ..	51	111	62	66	121	149	73	65	103	62	103	94
13. Per cent current expense of total	86	74	76	92	74	61	76	86	86	64	84	63
14. Expenditure increase ...	-1	-15	-8	-4	-22	-58	-6	-10	-4	-4	-18	-4
15. Current expenditure, 1930 ..	49	65	66	58	136	199	76	76	97	73	119	91
16. Financial obstacles	41	40	49	50	27	31	20	50	23	46	31	21
17. Tax leeway, 1930-37 ...	-17	-34	-11	0	-238	-175	-49	-25	-130	-66	-28	-19
18. Expenditure change index ..	102	113	85	107	84	71	92	87	96	95	85	96
19. Current expense per W.E.C.U., 1935	13	16	14	16	27	31	18	11	21	16	15	20
C. STRUCTURE PROFESSIONAL ^d ..	4.3	5.1	5.9	5.3	6.1	7.4	3.1	3.9	4.3	3.7	4.6	7.3
1. Attitude mean	72	69	74	71	77	81	73	76	75	76	80	77
2. Top attitude	17	5	16	12	28	51	9	23	25	17	15	28
3. Experimentation	24	43	80	50	78	77	41	55	52	68	69	60
4. Awareness, initiative	38	69	75	56	79	71	24	64	57	55	77	63
5. Success—personal	51	36	27	65	22	44	0	0	0	22	0	66
6. Success—negative	8	5	8	15	11	12	11	15	28	20	0	8
7. Success—resignation	0	36	27	0	45	118	0	0	111	43	0	66
8. Success—personality	28	29	31	21	22	13	16	24	3	26	23	28
9. Originality	18	28	29	15	24	25	21	27	22	18	33	28
10. Change needed	0	9	13	10	13	17	8	19	8	15	6	11
11. Obstacles	15	10	11	20	24	13	27	17	23	5	44	18
12. Sex	22	24	38	7	29	29	12	36	26	50	15	22
13. Marital status	84	81	95	68	59	71	86	22	78	69	58	94
15. Turnover	31	0	68	46	11	28	0	83	20	31	0	91
16. Age	29	31	29	31	35	32	29	32	31	28	28	30
18. Training over high school ..	33	39	41	31	43	50	22	30	38	24	32	39
19. Per cent postgraduate ...	13	26	34	26	43	59	6	9	35	18	8	31
20. Outside experience	15	26	69	46	79	94	25	64	22	43	46	92
21. Age Q ₁	26	27	25	26	31	27	26	23	29	26	25	26
22. Age Q ₃	34	39	37	43	41	40	35	50	34	34	33	35
23. Inbreeding	96	97	60	38	25	3	82	33	100	17	10	16
D. THE CULTURE PATTERN ^d ..	4.3	5.1	5.9	5.3	6.1	7.4	3.1	3.9	4.3	3.7	4.6	7.3
1. McCall mean	83	91	88	93	96	104	84	84	82	86	92	99
2a. McCall over Q ₂	10	27	15	31	36	68	14	7	9	12	25	47
2b. McCall P ₁₀	100	110	103	111	112	117	103	98	99	101	107	113
3. Parent attitude mean ...	64	59	64	61	63	64	57	64	64	58	58	67

TABLE 72A

MEASURE	COMMUNITY NUMBER ^b												
	13	14	15	16	17	18	19	20	21	22	23	24	
A. ADAPTABILITY ^a	42	61	29	37	69	48	29	53	31	29	17	30	
B. STRUCTURE ECONOMIC ^d ...	3.8	5.6	4.6	6.2	7.2	7.6	3.8	5.0	5.4	5.8	7.2	7.4	
1. Size, 1937	15	28	21	31	12	32	12	12	10	3	5	7	
2. Wealth, 1937	21	31	23	39	137	95	22	33	49	142	133	299	
3. Wealth, 1930	31	32	50	64	122	115	23	32	51	62	124	364	
4. Wealth, 1927	64	84	144	176	283	259	80	93	179	161	248	1438	
5. Tax leeway, 1930	4	5	15	17	34	40	5	5	14	20	45	151	
6. Tax leeway, 1937	0	4	3	7	43	32	5	7	14	47	40	127	
7. Per cent state aid	33	29	30	15	12	13	41	26	17	27	15	19	
8. Tax rate, education, 1937	30	19	19	17	9	9	15	11	12	9	7	4	
9. Tax rate, other, 1937 ...	25	17	17	14	11	7	12	18	10	7	13	4	
10. Tax rate, total	55	36	36	31	20	16	27	29	22	16	20	8	
11. Total expenditure, 1937 .	139	245	102	129	136	130	75	89	100	171	204	172	
12. Current expenditure, 1937	103	82	71	82	112	109	62	79	83	128	90	137	
13. Per cent current expense of total	74	34	70	63	83	84	83	89	83	75	44	80	
14. Expenditure increase ...	+5	0	-2	+8	-13	-1	-1	0	0	+54	+4	-69	
15. Current expenditure, 1930	86	76	71	87	118	99	53	71	77	53	85	190	
16. Financial obstacles	43	18	16	53	23	10	37	52	22	57	24	5	
17. Tax leeway, 1930-37 ...	-42	-9	-121	-96	+83	-79	+5	+16	-2	+276	-46	-243	
18. Expenditure change index	106	100	97	109	93	99	98	100	100	202	105	64	
19. Current expense per W.E.C.U., 1935	21	16	17	19	25	25	14	16	17	20	20	27	
C. STRUCTURE PROFESSIONAL ^d	6.7	5.9	6.0	7.4	7.7	6.7	3.0	5.9	7.7	4.4	5.7	4.4	
1. Attitude mean	74	75	78	69	74	72	74	75	75	80	70	71	
2. Top attitude	16	22	32	6	21	13	21	21	17	50	5	8	
3. Experimentation	63	51	67	33	74	53	52	52	70	50	37	25	
4. Awareness, initiative ...	73	52	65	55	74	59	73	59	100	75	63	85	
5. Success—personal	38	10	0	43	48	29	19	53	30	59	15	26	
6. Success—negative	25	10	8	14	10	12	17	15	14	18	9	8	
7. Success—resignation ...	25	57	30	0	10	34	10	11	59	0	0	26	
8. Success—personality	28	32	29	26	25	25	26	23	30	24	40	13	
9. Originality	25	21	20	19	26	23	17	23	23	17	21	22	
10. Change needed	11	17	16	9	13	22	7	8	10	0	7	7	
11. Obstacles	11	18	24	13	12	15	14	5	39	14	12	5	
12. Sex	26	29	27	23	15	18	18	39	29	13	21	47	
13. Marital status	74	94	89	68	72	60	76	63	45	50	94	44	
15. Turnover	66	0	15	64	36	39	128	44	83	63	0	56	
16. Age	34	30	34	38	42	33	28	32	31	30	33	31	
18. Training over high school	41	40	41	25	38	39	36	40	40	28	37	42	
19. Per cent postgraduate ...	34	25	35	21	32	29	16	30	32	0	16	35	
20. Outside experience	90	46	69	49	53	86	18	70	65	57	72	61	
21. Age Q ₁	31	26	29	29	32	28	26	27	26	23	28	28	
22. Age Q ₃	45	37	49	50	48	40	32	37	39	35	40	34	
23. Inbreeding	26	51	68	74	62	37	79	37	46	29	40	20	
D. THE CULTURE PATTERN ^d .	6.7	5.9	6.0	7.4	7.7	6.7	3.0	5.9	7.7	4.4	5.7	4.4	
1. McCall mean	86	94	94	86	94	101	82	94	97	83	87	76	
2a. McCall over Q ₃	20	34	33	19	27	52	9	32	42	4	13	2	
2b. McCall P ₉₀	108	112	112	106	107	118	100	111	114	95	102	92	
3. Parent attitude mean ...	60	63	65	64	64	62	61	60	66	60	63	63	

TABLE 72B

MEASURE	COMMUNITY NUMBER ^b															
	25	26	27	28	29	30	31	32	33	34	35	36				
A. ADAPTABILITY ^a	15	40	50	33	30	84	13	8	23	12	24	38				
B. STRUCTURE ECONOMY ^d ...	4.0	5.4	5.0	5.2	6.8	7.2	2.8	4.8	6.2	5.6	4.8	6.2				
1. Size, 1937	13	10	44	14	52	60	4	13	12	13	8	4				
2. Wealth, 1937	29	48	44	32	55	94	15	30	55	49	40	108				
3. Wealth, 1930	25	54	81	63	90	92	22	32	52	51	112	115				
4. Wealth, 1927	79	152	411	171	224	83	58	104	154	188	298	233				
5. Tax leeway, 1930	2	7	17	19	27	29	5	9	13	17	41	41				
6. Tax leeway, 1937	3	5	0	5	13	31	3	8	14	17	11	39				
7. Per cent state aid	31	14	16	23	14	17	55	17	13	14	25	20				
8. Tax rate, education, 1937	26	18	15	20	9	9	23	18	13	14	16	6				
9. Tax rate, other, 1937	15	21	26	14	17	9	9	5	12	2	6	7				
10. Tax rate, total	41	39	41	34	26	18	22	23	25	16	22	13				
11. Total expenditure, 1937	117	108	102	121	80	119	76	78	102	83	108	123				
12. Current expenditure, 1937	91	91	74	95	74	101	63	68	74	75	101	107				
13. Per cent current expense of total	77	84	73	78	92	85	84	87	72	90	93	84				
14. Expenditure increase	-6	-9	-33	-14	-13	-9	-23	0	-8	-4	-8	-21				
15. Current expenditure, 1930	70	89	94	102	80	97	74	57	66	69	92	123				
16. Financial obstacles	25	32	53	48	26	25	33	32	42	44	47	38				
17. Tax leeway, 1930-37	+11	-17	-168	-138	-135	118	-23	-7	+10	0	-296	-14				
18. Expenditure change index	109	90	65	86	83	91	83	100	112	106	91	83				
19. Current expense per W.E.C.U., 1935	19	21	26	19	16	23	7	12	16	16	19	20				
C. STRUCTURE PROFESSIONAL ^d ...	4.3	7.0	6.3	6.7	8.0	7.1	3.7	4.7	4.9	4.7	3.4	6.7				
1. Attitude mean	73	71	71	76	74	79	73	70	69	69	75	74				
2. Top attitude	14	15	18	27	19	38	6	8	9	5	17	24				
3. Experimentation	65	71	43	64	59	53	14	50	42	53	75	88				
4. Awareness, initiative	57	77	52	73	68	59	71	71	72	74	75	75				
5. Success—personal	28	14	34	8	51	30	0	53	0	51	44	119				
6. Success—negative	10	14	14	11	16	13	22	24	9	9	4	19				
7. Success—resignation	83	15	58	73	29	42	0	0	63	0	89	0				
8. Success—personality	15	20	29	31	25	22	28	23	20	35	29	17				
9. Originality	17	24	26	25	22	21	20	13	27	8	35	25				
10. Change needed	10	7	32	16	8	9	13	25	16	7	27	15				
11. Obstacles	21	18	17	12	9	15	0	23	17	8	26	15				
12. Sex	27	40	25	30	19	14	0	21	18	9	0	27				
13. Marital status	76	53	72	49	90	55	67	64	69	80	69	80				
15. Turnover	56	73	0	41	86	74	357	91	51	54	0	0				
16. Age	29	36	33	32	37	29	26	32	32	28	29	35				
18. Training over high school	40	47	38	41	44	41	22	33	47	24	25	44				
19. Per cent postgraduate	33	59	29	38	46	39	0	29	55	21	10	43				
20. Outside experience	22	55	57	71	49	40	71	68	40	30	25	92				
21. Age Q ₁	25	30	27	28	29	25	22	28	28	24	26	30				
22. Age Q ₃	33	44	43	40	43	33	35	35	37	36	38	53				
23. Inbreeding	66	54	70	44	64	57	29	48	44	54	77	43				
D. THE CULTURE PATTERN ^d ...	4.3	7.0	6.3	6.7	8.0	7.1	3.7	4.7	4.9	4.7	3.4	6.7				
1. McCall mean	88	97	96	90	97	86	87	88	86	82	85	105				
2a. McCall over Q ₃	19	41	41	21	42	18	12	18	22	14	10	37				
2b. McCall P ₉₀	105	116	116	106	119	106	101	105	109	103	100	126				
3. Parent attitude mean	64	62	62	60	69	70	59	58	62	61	59	58				

TABLE 72 (Continued)

MEASURE	COMMUNITY NUMBER ^b											
	1	2	3	4	5	6	7	8	9	10	11	12
D. THE CULTURE PATTERN (Continued)												
4. Parent attitude over Q ₃ .	22	12	18	20	25	28	7	11	19	10	10	45
5. Community opposition . .	16	22	25	16	25	34	18	36	26	36	15	22
6. Population over 21	48	53	59	55	67	66	53	56	50	59	54	59
7. Home ownership	57	56	64	50	51	56	38	46	32	38	47	65
8a. Eighth grade	22	38	40	27	50	68	17	7	25	18	39	54
8b. College graduates	7	7	14	9	26	40	3	4	11	2	10	27
9. Community pride	76	80	93	85	98	89	70	100	70	85	93	98
10. Nativity	31	60	42	11	20	5	55	39	18	31	10	29
11. Population change	144	112	147	115	105	199	106	87	109	195	144	147
12a. Unskilled labor	31	31	7	14	5	4	47	31	59	26	17	0
12b. White collar	16	27	32	20	23	46	16	8	29	9	14	39
13. Parochial	9	10	0	36	25	18	22	0	44	0	1	0
14. Community obstacles . .	15	10	8	20	24	24	27	17	23	5	44	21
15. School esteem	40	42	41	48	40	52	25	54	58	33	37	39
E. SCHOOL ADMINISTRATION^d												
1. Needed change, total . .	5.3	5.8	5.8	5.0	7.3	8.0	2.8	2.8	5.3	5.5	6.0	6.5
2. Second level lag, total . .	35	28	36	23	27	19	31	5	18	7	19	19
3. Administrative obstacles, total	50	106	97	127	169	243	64	62	55	118	98	270
5. Public relations, total . .	30	42	25	17	21	25	47	17	52	32	13	32
6. Source of ideas, total . .	42	49	54	43	63	57	31	42	41	59	62	61
10. Outside ideas, total . . .	25	41	40	50	39	32	57	59	26	49	38	45
11. Pupil-teacher ratio, 1937.	14	20	15	12	17	22	7	5	13	15	8	8
	42	32	37	30	22	32	28	26	28	29	25	27

TABLE 72A (Continued)

MEASURE	COMMUNITY NUMBER ^b													
	13	14	15	16	17	18	19	20	21	22	23	24		
D. THE CULTURE PATTERN (Continued)														
4. Parent attitude over Q ₃ .	13	16	29	28	31	17	9	15	36	14	27	18		
5. Community opposition . .	28	24	11	19	32	20	12	14	69	50	0	35		
6. Population over 21	61	62	62	58	68	64	43	65	68	53	53	47		
7. Home ownership	58	46	38	58	53	56	44	51	61	47	61	43		
8a. Eighth grade	45	60	60	68	84	58	15	51	82	23	35	18		
8b. College graduates	7	16	19	21	40	16	1	14	38	4	11	3		
9. Community pride	88	93	94	62	93	85	72	89	93	95	87	81		
10. Nativity	25	35	39	56	50	23	15	35	37	23	45	38		
11. Population change	98	136	113	96	106	124	111	126	199	125	107	88		
12a. Unskilled labor	9	17	13	8	0	16	74	5	3	53	24	39		
12b. White collar	47	11	30	47	67	27	3	30	44	6	18	20		
13. Parochial	9	0	14	35	10	15	27	13	20	0	350	5		
14. Community obstacles . .	11	19	12	13	12	15	14	5	39	14	12	5		
15. School esteem	57	60	50	63	62	59	51	47	46	66	36	72		
E. SCHOOL ADMINISTRATION^d														
1. Needed change, total . .	5.0	6.8	7.5	5.5	8.3	5.8	5.8	6.8	5.5	5.3	5.0	4.3		
2. Second level lag, total . .	18	17	16	17	22	19	17	14	13	27	7	37		
3. Administrative obstacles, total	151	224	122	143	232	185	123	143	124	119	77	122		
5. Public relations, total . .	14	35	41	22	32	37	33	24	33	14	29	68		
6. Source of ideas, total . .	62	55	70	47	65	59	58	52	76	64	37	51		
10. Outside ideas, total . . .	45	42	40	47	32	48	48	39	54	59	47	65		
11. Pupil-teacher ratio, 1937.	0	15	23	13	20	10	13	17	7	8	21	13		
	25	26	30	29	28	26	36	28	29	33	24	17		

TABLE 72B (Continued)

MEASURE	COMMUNITY NUMBER ^b													
	25	26	27	28	29	30	31	32	33	34	35	36		
D. THE CULTURE PATTERN														
<i>(Continued)</i>														
4. Parent attitude over Q ₃ . . .	17	14	18	21	43	50	13	10	19	23	6	13		
5. Community opposition . . .	41	19	27	36	14	57	29	25	11	24	35	13		
6. Population over 21	66	58	60	64	59	53	48	57	53	47	49	70		
7. Home ownership	46	63	38	66	58	64	56	41	42	32	37	60		
8a. Eighth grade	11	54	47	51	85	41	23	35	52	27	5	70		
8b. College graduates	3	25	16	19	53	22	3	5	26	4	2	41		
9. Community pride	82	91	81	92	93	69	91	97	53	81	79	95		
10. Nativity	26	26	26	36	36	11	25	32	56	16	33	26		
11. Population change	99	108	125	99	99	176	89	121	97	164	125	119		
12a. Unskilled labor	65	7	26	8	0	12	18	23	8	46	59	10		
12b. White collar	10	41	33	24	42	35	3	2	31	23	18	35		
13. Parochial	0	9	10	11	18	11	0	0	76	1	0	2		
14. Community obstacles . . .	21	18	17	12	24	19	0	23	17	8	26	15		
15. School esteem	15	50	71	60	65	83	33	52	25	50	82	40		
E. SCHOOL ADMINISTRATION ^a														
1. Needed change, total . . .	24	17	13	15	21	24	13	10	20	19	10	37		
2. Second level lag, total . .	74	167	196	134	134	246	49	39	93	62	85	135		
3. Administrative obstacles, total	44	29	13	20	33	35	0	30	33	38	5	31		
5. Public relations, total . . .	47	57	54	60	63	64	46	51	55	64	40	51		
6. Source of ideas, total . . .	41	44	39	45	40	52	60	62	42	47	29	39		
10. Outside ideas, total	10	11	12	11	14	16	0	9	11	3	6	11		
11. Pupil-teacher ratio, 1937 .	30	27	28	24	32	31	30	28	36	35	36	21		

^a For definition of items see body of text and statement on page 467.

^b For identification of characteristics of community cf. Table 71.

^c One-tenth the score from application of *A Guide for Self-Appraisal of School Systems*.

^d Composite indices made up from average of items in standard score form as follows: Section B, Economic, items 1, 2, 6, 7, 8 and 11; Section C, Professional, items 1, 2, 3, 5, 9, 16, 18, 19, 20 and 23; Section D, Community, items 2a, 4, 6, 7, 8a, 12b and 15; Section E, Administration, items 2, 5, 6 and 10.

TABLE 73

*Frequency of Communities in Rank Order and Equivalent Standard Scores,
Thirty-six Cases Only*

STANDARD SCORE	NUMBER OF COMMUNITIES	STANDARD DEVIATION RANGE
10	1	+2.0 to +2.5
9	2	+1.5 to +2.0
8	3	+1.0 to +1.5
7	5	+ .5 to +1.0
6	7	0 to + .5
5	7	- .5 to 0
4	5	-1.0 to - .5
3	3	-1.5 to -1.0
2	2	-2.0 to -1.5
1	1	-2.5 to -2.0
Total	36	

of local teachers (professional inbreeding), communities were ranked in ascending rather than descending order so that a high standard score always represented the highest likelihood of circumstances favoring adaptability.

Measures were selected for their zero-order correlation with the adaptability measure. The method of selection was a combination of degree of correlation and rational significance. If several measures of about the same correlation with adaptability dealt with the same type of quality, only that measure with highest correlation was used. This was the case with the various measures of wealth. The wealth measure with highest correlation with adaptability was the 1937 taxable valuation per pupil in average daily attendance. This was therefore the only wealth measure represented in the index.

The composition of the four composite indices was as follows:

Composite Economic Index (B)

1. Size, 1937
2. Wealth, 1937
6. Tax Leeway, 1937
7. Per Cent State Aid
8. Tax Rate, Education, 1937
11. Total Expenditure, 1937

Composite Professional Index (C)

1. Teacher Attitude Mean
2. Top Attitude of Teachers
3. Teacher Experimentation
5. Success—Teacher Adaptability
9. Teacher Originality
16. Age of Teachers
18. Training Above High School
19. Per Cent Post Graduate
20. Outside Experience
23. Inbreeding

Composite Community Index (D)

- 2a. Top McCall
4. Top Attitude of Parents
6. Population Over 21
7. Home Ownership
- 8a. Eighth Grade
- 12b. White Collar Workers
15. School Esteem

Composite Administrative Index (E)

2. Administrative Adaptability
5. Public Relations
10. Outside Ideas

*Statistical Note 15**Diffusion of Eight Adaptations in 344 School Districts
in Relation to Wealth, Size and Expenditure*

Tables 74 to 81 show the average size, expenditure, and wealth of school districts introducing various adaptations at particular dates. These data were obtained from questionnaires, plus information obtained from the State Department of Public Instruction and materials from the 1927 *Report of the Commission to Study the Distribution of State Subsidies to School Districts* (1927).

From Table 82 can be drawn a comparison of the field sample of communities with the several adaptations and those without the several adaptations on the three measures—wealth, size, and expenditure. In this table the ninth adaptation, integrated curricula, is added. Note that there are only four communities which have introduced this adaptation. No distribution according to time was possible because of the recency of these adaptations.

TABLE 74

Average Number of Weighted Elementary Classroom Units, Current Expense per Classroom Unit, and Wealth of Pennsylvania Districts Establishing KINDERGARTENS at Various Dates

YEAR OF INTRODUCTION	NUMBER OF DIS- TRICTS	AVERAGE ^a WEIGHTED ELEMENTARY CLASSROOM UNITS (1935)	AVERAGE ^a CURRENT EXPENSE PER CLASSROOM UNIT (1935)	AVERAGE FULL ^b VALUATION OF PROPERTY PER CLASSROOM UNIT (1927) (THOUSANDS)
1936-37	7	59	\$2,353	\$274
1934-35	1	70	—	165
1932-33	2	76	1,895	117
1930-31	3	170	2,311	312
1928-29	2	61	1,350	290
1926-27	4	55	3,374	460
1924-25	3	62	2,396	250
1922-23	1	114	4,230	748
1920-21	5	277	2,343	214
1918-19	3	63	2,666	219
1916-17	1	115	2,224	459
1914-15	1	60	2,148	239
1912-13	1	147	2,465	182
1910-11	1	510	2,458	273
1908-09	1	641	2,996	463
1906-07	2	60	2,306	212
1904-05	—	—	—	—
1902-03	2	618	2,313	233
1900-01	2	813	2,559	183
1899 and earlier ..	2	72	3,127	400
Districts of sample with adaptation	45	181	2,520	242
Districts of sample without adapta- tion	296	66	1,621	118

^a Computed from information supplied by state reports of districts obtained from the State Department of Public Instruction.

^b Computed from the *Pennsylvania Report of the Commission to Study the Distribution of State Subsidies to School Districts, 1927*.

TABLE 75

Average Number of Weighted Elementary Classroom Units, Current Expense per Classroom Unit, and Wealth of Pennsylvania Districts REORGANIZING HIGH SCHOOLS at Various Dates

YEAR OF INTRODUCTION	NUMBER OF DIS- TRICTS	AVERAGE ^a WEIGHTED ELEMENTARY CLASSROOM UNITS (1935)	AVERAGE ^a CURRENT EXPENSE PER CLASSROOM UNIT (1935)	AVERAGE FULL ^b VALUATION OF PROPERTY PER CLASSROOM UNIT (1927) (THOUSANDS)
1936-37	10	71	\$1,591	\$ 94
1934-35	11	144	1,751	130
1932-33	17	75	1,812	168
1930-31	14	71	1,836	135
1928-29	17	61	1,968	182
1926-27	22	135	2,412	179
1924-25	25	154	2,194	176
1922-23	11	229	2,111	193
1920-21	3	49	1,496	121
1918-19	2	131	1,787	253
1916-17	3	427	2,230	175
1914-15	1	48	2,617	320
1912-13	0	—	—	—
1910-11	2	76	1,477	98
1909 or earlier ...	1	12	1,054	88
Districts of sample with adaptation	153	118	1,988	157
Districts of sample without adapta- tion	191	51	1,530	108

^a Computed from information supplied by state reports of districts obtained from the State Department of Public Instruction.

^b Computed from the Pennsylvania *Report of the Commission to Study the Distribution of State Subsidies to School Districts, 1927*.

TABLE 76

Average Number of Weighted Elementary Classroom Units, Current Expense per Classroom Unit, and Wealth of Pennsylvania Districts Establishing SPECIAL CLASSES for Mentally Retarded Children at Various Dates

YEAR OF INTRODUCTION	NUMBER OF DIS- TRICTS	AVERAGE ^a WEIGHTED ELEMENTARY CLASSROOM UNITS (1935)	AVERAGE ^a CURRENT EXPENSE PER CLASSROOM UNIT (1935)	AVERAGE FULL ^b VALUATION OF PROPERTY PER CLASSROOM UNIT (1927) (THOUSANDS)
1936-37	19	79	\$1,739	\$134
1934-35	2	124	1,753	192
1932-33	8	122	1,846	158
1930-31	6	115	2,495	208
1928-29	9	96	1,856	157
1926-27	13	164	2,045	153
1924-25	6	133	1,926	171
1922-23	10	150	2,076	189
1920-21	3	255	3,412	290
1918-19	2	234	2,090	214
1916-17	2	667	2,693	270
1914-15	1	904	2,338	138
1912-13	2	439	2,453	310
1910-11	0	—	—	—
1909 or earlier ...	2	641	2,996	399
Districts of sample with adaptation	87	166	2,057	166
Districts of sample without adapta- tion	257	52	1,626	117

^a Computed from information supplied by state reports of districts obtained from the State Department of Public Instruction.

^b Computed from the *Pennsylvania Report of the Commission to Study the Distribution of State Subsidies to School Districts, 1927.*

TABLE 77

Average Number of Weighted Elementary Classroom Units, Current Expense per Classroom Unit, and Wealth of Pennsylvania Districts Establishing
 HOMEMAKING CLASSES FOR BOYS at Various Dates

YEAR OF INTRODUCTION	NUMBER OF DIS- TRICTS	AVERAGE ^a WEIGHTED ELEMENTARY CLASSROOM UNITS (1935)	AVERAGE ^a CURRENT EXPENSE PER CLASSROOM UNIT (1935)	AVERAGE FULL ^b VALUATION OF PROPERTY PER CLASSROOM UNIT (1927) (THOUSANDS)
1937	7	94	\$1,832	\$178
1936	5	70	1,695	101
1935	5	174	2,384	187
1934	7	171	1,896	176
1933	3	53	2,383	286
1932	3	267	2,844	183
1931	4	136	1,874	188
1930	3	328	2,152	214
1929	—	—	—	—
1928	—	—	—	—
1927	—	—	—	—
1926	—	—	—	—
1925	1	641	2,996	463
1924	—	—	—	—
1923	—	—	—	—
1922	1	58	2,736	172
Districts of sample with adaptation	39	161	2,101	172
Districts of sample without adapta- tion	305	70	1,690	122

^a Computed from information supplied by state reports of districts obtained from the State Department of Public Instruction.

^b Computed from the Pennsylvania *Report of the Commission to Study the Distribution of State Subsidies to School Districts, 1927*.

TABLE 78

Average Number of Weighted Elementary Classroom Units, Current Expense per Classroom Unit, and Wealth of Pennsylvania Districts Introducing NON-FORMAL ADULT EDUCATION at Various Dates

YEAR OF INTRODUCTION	NUMBER OF Dis- TRICTS	AVERAGE ^a WEIGHTED ELEMENTARY CLASSROOM UNITS (1935)	AVERAGE ^a CURRENT EXPENSE PER CLASSROOM UNIT (1935)	AVERAGE FULL ^b VALUATION OF PROPERTY PER CLASSROOM UNIT (1927) (THOUSANDS)
1937	3	66	\$2,212	\$214
1936	4	92	1,664	92
1935	5	70	2,104	105
1934	7	81	1,854	125
1933	6	139	1,859	123
1932	4	155	2,022	219
1931	—	—	—	—
1930	2	85	1,252	116
1928-29	1	72	3,127	466
1926-27	1	904	2,338	138
1924-25	—	—	—	—
1922-23	1	641	2,996	463
1920-21	3	235	2,333	165
1918-19	1	77	1,760	76
1916-17	1	611	2,605	251
1915 and earlier ..	2	—	—	322
Districts of sample with adaptation	44	151	1,976	138
Districts of sample without adapta- tion	300	71	1,703	125

^a Computed from information supplied by state reports of districts obtained from the State Department of Public Instruction.

^b Computed from the *Pennsylvania Report of the Commission to Study the Distribution of State Subsidies to School Districts, 1927*.

TABLE 79

Average Number of Weighted Elementary Classroom Units, Current Expense per Classroom Unit, and Wealth of Pennsylvania Districts Placing New Emphasis on EXTRACURRICULAR ACTIVITIES at Various Dates

YEAR OF INTRODUCTION	NUMBER OF DIS- TRICTS	AVERAGE ^a WEIGHTED ELEMENTARY CLASSROOM UNITS (1935)	AVERAGE ^a CURRENT EXPENSE PER CLASSROOM UNIT (1935)	AVERAGE FULL ^b VALUATION OF PROPERTY PER CLASSROOM UNIT (1927) (THOUSANDS)
1936-37	21	67	\$1,697	\$125
1934-35	24	75	1,720	125
1932-33	33	63	1,884	145
1930-31	38	115	2,024	140
1928-29	21	80	1,885	138
1926-27	21	136	1,990	162
1924-25	20	139	1,836	140
1922-23	2	67	2,610	251
1920-21	9	142	1,786	166
1918-19	2	274	2,423	188
1916-17	2	123	1,493	147
1914-15	—	—	—	—
1912-13	—	—	—	—
1910-11	—	—	—	—
1909 or earlier ...	1	24	2,037	248
Districts of sample with adaptation	195	101	1,894	141
Districts of sample without adapta- tion	149	53	1,526	110

^a Computed from information supplied by state reports of districts obtained from the State Department of Public Instruction.

^b Computed from the Pennsylvania *Report of the Commission to Study the Distribution of State Subsidies to School Districts, 1927.*

TABLE 80

*Average Number of Weighted Elementary Classroom Units, Current Expense per Classroom Unit, and Wealth of Pennsylvania Districts Abandoning
ELEMENTARY FINAL EXAMINATIONS at Various Dates*

YEAR OF INTRODUCTION	NUMBER OF DIS- TRICTS	AVERAGE ^a WEIGHTED ELEMENTARY CLASSROOM UNITS (1935)	AVERAGE ^a CURRENT EXPENSE PER CLASSROOM UNIT (1935)	AVERAGE FULL ^b VALUATION OF PROPERTY PER CLASSROOM UNIT (1927) (THOUSANDS)
1936-37	6	50	\$2,101	\$206
1934-35	2	73	1,604	158
1932-33	8	47	1,863	176
1930-31	9	77	1,411	121
1928-29	12	74	2,031	207
1926-27	9	174	2,799	159
1924-25	3	154	2,022	151
1922-23	2	167	2,260	205
1920-21	2	158	1,785	169
1918-19	1	61	2,001	135
1916-17	1	368	2,447	388
1914-15	1	219	2,440	218
1912-13	—	—	—	—
1910-11	—	—	—	—
1909 or earlier ...	2	60	1,636	207
Districts of sample with adaptation	71	99	2,049	178
Districts of sample without adapta- tion	273	76	1,658	119

^a Computed from information supplied by state reports of districts obtained from the State Department of Public Instruction.

^b Computed from the *Pennsylvania Report of the Commission to Study the Distribution of State Subsidies to School Districts, 1927.*

TABLE 81

Average Number of Weighted Elementary Classroom Units, Current Expense per Classroom Unit, and Wealth of Pennsylvania Districts Developing Programs of EXTENSIVE READING IN ELEMENTARY SCHOOLS at Various Dates

YEAR OF INTRODUCTION	NUMBER OF DIS- TRICTS	AVERAGE ^a WEIGHTED ELEMENTARY CLASSROOM UNITS (1935)	AVERAGE ^a CURRENT EXPENSE PER CLASSROOM UNIT (1935)	AVERAGE FULL ^b VALUATION OF PROPERTY PER CLASSROOM UNIT (1927) (THOUSANDS)
1936-37	23	62	\$1,710	\$130
1934-35	48	74	1,664	118
1932-33	29	70	1,776	126
1930-31	43	75	1,831	144
1928-29	25	81	1,949	132
1926-27	15	77	1,744	140
1924-25	13	151	2,281	196
1922-23	8	81	1,911	128
1920-21	10	91	1,692	119
1918-19	1	424	2,076	247
1916-17	8	155	2,142	89
1914-15	4	204	2,424	170
1912-13 .....	.....	.....	.....	.....
1910-11	3	44	1,556	177
1909 or earlier ...	2	135	1,512	136
Districts of sample with adaptation	245	84	1,806	133
Districts of sample without adapta- tion	99	72	1,552	111

^a Computed from information supplied by state reports of districts obtained from the State Department of Public Instruction.

^b Computed from the Pennsylvania *Report of the Commission to Study the Distribution of State Subsidies to School Districts, 1927*.

TABLE 82
*Relationship of Present Status of Nine Adaptations to Wealth, Size, and Expenditure in
 School Districts Covered by Field Study*

ADAPTATION	COMMUNITIES WITH ADAPTATION				COMMUNITIES WITHOUT ADAPTATION				TOTAL NUMBER OF COMMU- NITIES
	Number of Commu- nities	Average ^a Wealth per W.E.C.U. 1927	Average Current Expense per W.E.C.U. 1935	Average Number of W.E.C.U. 1935	Number of Commu- nities	Average ^a Wealth per W.E.C.U. 1927	Average Current Expense per W.E.C.U. 1935	Average Number of W.E.C.U. 1935	
Kindergarten	15	\$338	\$2556	180	33	\$142	\$1723	91	48
Reorganized High Schools	27	251	2248	163	20	145	1644	63	47
Special Classes	26	255	2272	159	20	138	1598	50	46
Homemaking for Boys .	12	305	2125	185	36	170	1936	100	48
Adult Leisure Classes .	21	240	2081	146	25	174	1894	83	46
Extracurricular Activi- ties	28	239	2229	142	18	150	1592	65	46
Elementary Final Ex- aminations	20	200	2121	135	26	207	1871	94	46
Integrated Curricula ..	4	241	2357	296	44	200	1950	103	48
Supplementary Reading	16	245	2402	102	30	182	1754	117	46

^a In thousands of dollars. Full valuation of property per weighted elementary classroom unit.

*Statistical Note 16**Regression of Adaptability on Current Expenditure*

In Table 83 appear the materials necessary for determining regression coefficients and correlation coefficients of adaptability on current expense.

TABLE 83

Analysis of Covariance of Current Expenditures per Weighted Elementary Classroom Unit and Adaptability in Thirty-six Communities

SOURCE OF VARIATION	DEGREES OF FREEDOM	SUM OF SQUARES		SUM OF PRODUCTS
		Adaptability ^a	Expenditure ^b	
Total	35	10,987.64	858.75	1,804.42
Between large and small districts	1	2,162.25	96.69	457.25
Within size classes . .	34	8,825.39	762.06	1,347.17

^a In units one one-hundredth that of actual adaptability scores.

^b In units one-tenth that of actual expenditure in dollars.

From this table we find that the total correlation between the two measures is .5874.³⁰ But for the expenditure analysis in Table 28 we desire to free this correlation from the effects of differences in size. This is done by determining the within-size class correlation from the third row of Table 83. It was found to be .5195. The results of distributing the thirty-six communities according to expenditure and adaptability are shown in Figure 19.³¹

*Statistical Note 17**Community Differences on the Poll of Public Opinion*

The analysis of variance of scores of 3,194 parents on the poll of public opinion, *What Should Our Schools Do?*³² indicates that this instrument significantly differentiates between community average

³⁰ From formula:

$$r = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}}$$

The three values are found in the total row of Table 83.

³¹ Cf. *supra*, p. 182.

³² Mort, Paul R., Cornell, F. G., and Hinton, Norman H., *op. cit.*

scores. In the distribution of this questionnaire, samplings were made in each community. One hundred questionnaires were allowed for each one. The actual number of returns per community was, on the average, 68. The scheme followed in distributing this questionnaire was to select a fifth grade, a ninth grade, and a twelfth grade, and where various segments of a community might be disproportionately represented by taking a fifth grade in one particular school, these questionnaires were divided and given to children either in representative fifth grade classes or in two fifth grade classes in opposite types of community segments. In most cases the ninth grades and twelfth grades were representative of the community in so far as high schools are usually centralized, serving all areas of the school district. With the high school leaving age of the present era, the dangers of selection by covering parents of high school students is not as great as in former periods when only the intellectually elite attended high school.

The questionnaires were carried by the children to their homes in a school district envelope accompanied by a letter to parents over the superintendent's or supervising principal's signature. Included with the questionnaire were a self-addressed envelope returnable directly to the research staff by means of the teacher and the local administrative office. Teachers checked on returns and prompted children whose replies were not forthcoming after a matter of a few days and all returns, in sealed envelopes, were assembled in the superintendent's or supervising principal's office and shipped to New York.

Table 84 presents analysis of variance of scores by parents and

TABLE 84

Analysis of Variance of Scores by Parents and Citizens on Poll of Opinion

SOURCE OF VARIATION	DEGREES OF FREEDOM	SUM OF SQUARES	MEAN SQUARES
Total	3,193	296,495	—
Between mean of communities	46	24,133	524.64**
Among parents in same community ..	3,147	272,362	86.55

**Highly significant. $F = 6.06$, one per cent point approximately 1.50.

citizens on this poll of public opinion, reached in the manner described above. We see from the table that the instrument suitably discriminates among community averages and that communities in our study were found to differ significantly in the attribute which the poll of public opinion represents.

In Table 85 are shown the results of a further breakdown of variance on this poll. Averages of people replying in communities having and not having the nine specific adaptations studied appear in the first two columns. A comparison of the means in these two columns represents one degree of freedom. This is shown in the last column in a way as to indicate which differences are statistically significant.

TABLE 85

Analysis of Variance Comparing Community Means of Parents' and Citizens' Scores on Poll of Opinion, Communities With and Communities Without Nine Adaptations

ADAPTATION	MEAN SCORES		SUM OF SQUARES FOR SINGLE DEGREE OF FREEDOM COMPARING MEANS*
	Communities with Adaptation	Communities without Adaptation	
Kindergarten	64.17	61.76	4,351.48**
Reorganized High School	63.58	61.21	4,204.38**
Special Classes	63.55	61.34	3,738.51**
Homemaking for Boys . . .	63.75	62.26	1,430.21**
Adult Classes	63.32	62.09	1,213.83**
Extracurricular Activities.	62.74	62.54	29.34
Elimination of Elementary			
Final Examinations . . .	63.00	62.38	306.85
Integrated Curricula . . .	64.00	62.54	552.97*
Supplementary Reading . .	62.74	62.63	9.95

* Also mean square or variance between means of communities having and not having adaptation. Significance determined by comparison with 86.55; see Table 84.

* Significant.

** Highly significant.

Similar treatment was given the returns from the same questionnaire distributed to teachers. In Table 86 we show the total variance of scores of 2,660 teachers on the poll of opinion broken up into

TABLE 86

Analysis of Variance of Scores by Teachers on Poll of Opinion

SOURCE OF VARIATION	DEGREES OF FREEDOM	SUM OF SQUARES	MEAN SQUARES
Total	2,659	240,000	—
Between means of communities	47	25,996	553.10**
Among teachers in same community .	2,612	214,008	81.93

that which is associated between the averages of communities and that which represents variance among teachers *within the same community*.

It will be seen from Table 86 that the community means vary to an extent which can not be attributed to chance. As with the parents' scores on the poll of opinion, a regrouping was made to find out if there were differences between communities having and communities not having various adaptations so far as teacher sentiment is concerned. The results appear in Table 87.

TABLE 87

Analysis of Variance Comparing Community Means of Teachers' Scores on Poll of Opinion, Communities With and Communities Without Nine Adaptations

ADAPTATION	MEAN SCORE		SUM OF SQUARES FOR SINGLE DEGREE OF FREEDOM COMPARING MEANS ^a
	Communities with Adaptation	Communities without Adaptation	
Kindergarten	74.99	73.45	1,541.64**
Reorganized High School	75.00	71.88	5,240.18**
Special Classes	74.41	73.16	745.20**
Homemaking for Boys ...	75.41	73.46	2,235.31**
Adult Classes	74.80	73.21	1,657.39**
Extracurricular Activities.	74.49	73.09	1,027.12**
Elimination of Elementary			
Final Examinations ...	75.13	72.91	3,260.44**
Integrated Curricula	74.03	74.13	3.19
Supplementary Reading .	74.93	73.49	1,365.81**

^a Also mean square or variance between means of communities having and not having adaptation. Significance determined by comparison with 81.93; see Table 86.

*Statistical Note 18**Analysis of Level of Training of Teachers*

The distribution of 200 teachers according to three classes of level of training and division of school in which employed appears in Table 88. In this table the sums of measures, the number of cases, and the means are shown.

The analysis of variance in Table 89 shows a significant difference between the *division* means on the opinion measure. These means are, respectively, 72.3 and 75.5, as seen in Table 88. It therefore appears desirable to emancipate differences due to division in which teacher is employed from computations of significance of training level.

A different breakdown of variance shows no significant differ-

TABLE 88

Distribution of 200 Teachers on Poll of Opinion and Years' Experience According to Years' Training Beyond High School

TRAINING ABOVE HIGH SCHOOL	ELEMENTARY TEACHERS			HIGH SCHOOL TEACHERS			ALL TEACHERS		
	Sum	N	Mean	Sum	N	Mean	Sum	N	Mean
Less than four years									
\bar{Y}^a	5174	73	70.9	448	6	74.7	5622	79	71.2
\bar{X}^a	899	73	12.3	134	6	22.3	1033	79	13.1
Four but less than five									
\bar{Y}	1427	19	75.1	2569	35	73.4	3996	54	74.0
\bar{X}	200	19	10.5	407	35	11.6	607	54	11.2
Five or more									
\bar{Y}	626	8	78.3	4529	59	76.8	5155	67	76.9
\bar{X}	111	8	13.9	752	59	12.7	863	67	12.9
Total									
\bar{Y}	7227	100	72.3	7546	100	75.5	14773	200	73.9
\bar{X}	1210	100	12.1	1293	100	12.9	2503	200	12.5
Total $\Sigma Y^2 = 1,107,499$. Total $\Sigma X^2 = 47,267$. Total $\Sigma XY = 182,040$.									

^a \bar{Y} = Opinion score. \bar{X} = Experience.

TABLE 89

Analysis of Variance of Opinion Scores

SOURCE OF VARIATION	DEGREES OF FREEDOM	SUM OF SQUARES	VARIANCE
Total	199	16,291.36	—
Between divisions *	1	508.81	508.81*
Among training classes (same divisions)	4	832.95	208.23*
Among teachers, same division and training	194	1,341.76	77.06

* High School versus elementary school.

ence between divisions in which a teacher is employed when comparisons are made between teachers on the same training level group. Differences between high school teachers and elementary school teachers in opinion score are largely due, therefore, to differences between these two groups of teachers in training. This is shown in Table 90.

TABLE 90

Analysis of Variance of Opinion Scores Showing Absorption of Division Differences by Training Differences

SOURCE OF VARIATION	DEGREES OF FREEDOM	SUM OF SQUARES	VARIANCE
Total	199	16,291.36	—
Among training classes	2	1,210.72	605.36**
Between divisions (same training)	3	131.04	43.68
Among teachers, same division and training	194	14,949.60	77.06

Another factor, years of experience, is brought in in Table 91. The analysis of variance of years of experience is not shown here because it has no particular bearing on our problem. It was found, however, that neither division of school system in which employed nor levels of training appear to be associated with years of experience.

In Table 91 we see that after adjustment for the independent

variable, years of experience, mean opinion scores differ significantly among the three training levels.

TABLE 91

Analysis of Covariance, Opinion Score and Years' Experience

SOURCE OF VARIATION	DEGREES OF FREEDOM	SUM OF SQUARES AND PRODUCTS			ERRORS OF ESTIMATE		
		ΣX^2 (Experience)	ΣXY	r^2 Opinion	Sum of Squares	Degrees of Freedom	Variance
Total	199	15,941.95	-2,844.09	16,291.36	15,783.97	198	79.72
Between divisions	1	34.44	131.69	508.81	—	—	—
Among training classes (same divisions)	4	667.46	13.87	832.95	—	—	—
Among teachers, same division and training	194	15,240.05	-2,989.65	14,949.60	14,363.12	193	74.42
Among training classes + error	198	15,907.51	-2,975.78	15,782.55	15,225.88	197	
For test of adjusted means.					862.76	4	215.69*
Total correlation = -.1765							
Within group correlation, division and training = -.1981							
Within division correlation = -.1878							

Statistical Note 19

Analysis of Variance of Opinions of Seventy-Eight Teachers, in Two School Systems, by Training Institutions

The analysis of variance from which the effects of school systems and training institutions upon teacher opinion are shown, as measured by the questionnaire, *What Should Our Schools Do?* appears in Tables 92 and 93.

TABLE 92

An Analysis of Variance of Teacher Opinion of Seventy-eight Teachers Trained in Six Different Institutions and Represented in Two Different School Systems, College Influence Held Constant

SOURCE OF VARIATION	DEGREES OF FREEDOM	SUM OF SQUARES	MEAN SQUARE
Total	77	5,071.08	—
Between colleges	5	322.23	64.45
Between towns, same college	6	729.07	121.51
Teachers, same town and college	66	4,019.78	60.91

From Table 92 we see that the variance among towns of teachers from the same college is approximately twice the error variance. The actual F test is slightly under the five per cent point of 2.24. Variance between colleges is little greater than the error variance.

In Table 93 we see that when teachers from different colleges are compared with differences among towns held constant, the variance

TABLE 93

An Analysis of Variance of Teacher Opinion of Seventy-eight Teachers Trained in Six Different Institutions and Represented in Two Different School Systems, Community Influence Held Constant

SOURCE OF VARIATION	DEGREES OF FREEDOM	SUM OF SQUARES	MEAN SQUARE
Total	77	5,071.08	—
Between towns	1	652.34	652.34**
Between colleges, same town	10	398.96	39.90
Teachers, same town and college	66	4,019.78	60.91

is very slight, 39.90. The *high significant* variance in Table 93 between the two school districts, 652.34, produces an F test over 10. The one per cent point is slightly over 7.0. Whichever method is followed in breaking down the variance, we see from the two tables that the town in which the teacher is located has more to do with the level of her sentiment toward issues in adaptability than the college in which she was trained.

SUPPLEMENT C

Schedules and Survey Forms

SOME explanation seems appropriate for certain measures to which there has been frequent reference in this volume. These measures, derived, for the most part, from questionnaire and other sources, are defined in Supplement B. A brief summary of schedules and forms from which they were developed is the purpose of this supplement. For the sake of brevity, only passing note will be made of the common and most obvious techniques used in this study.

Information from Large Sample of 344 Districts

Observations based on the large sample were derived from the following sources:

(1) Annual reports of school districts filed in the State Department of Education in Harrisburg. Statistics on average daily attendance by schools, current expense, and expenditures for non-resident tuition, and transportation obtained through the courtesy of the Department permitted the computation of size in weighted elementary classroom units and current expense per weighted elementary classroom unit for the year 1934. In these computations adjustments were made for various factors by means of the National Pupil-Teacher Index reported in *State Support for Public Education*.

(2) Taxable property valuation per teaching unit as published for the year 1927 in the *Report of the Commission to Study the Distribution of State Subsidies to School Districts*.

(3) The questionnaire, *A Questionnaire Relative to the Extent and History of Certain Practices in the Public Schools of Pennsylvania*. This questionnaire was sent to all first, second, and third class districts and to a random one-tenth sampling of fourth class districts, a total of some 500 districts. Returns were received from 344 of these districts. This questionnaire was designed to elicit information by direct questions as to the presence or absence of twelve adaptations (later reduced to nine for field study) and approximate dates of introduction. Sample items are as follows:

I. KINDERGARTENS

Does the board of school directors of your district maintain kindergartens for children between the ages of four and six years?

If so, when were kindergartens first established?

II. REORGANIZED HIGH SCHOOLS

Most of the public secondary schools in Pennsylvania are four-year high schools. A number of school districts are no longer operating on the 8-4 plan of organization.

If all or part of your secondary school classes are organized on some basis other than 8-4 please indicate below when the reorganization was made.

- | | | |
|----------------------------------|-------------------------|---------|
| 1. Junior and senior high school | (6-3-3 or 6-2-4) | |
| 2. Junior-senior high school | (6-6) | |
| 3. Four-year junior high school | (6-4 or 6-4-2 or 6-4-4) | |
| 4. Other reorganized high school | (indicate) | |

III. SPECIAL EDUCATION

Does your school system provide a special class or classes for the mentally retarded (orthogenic backward)?

If so, when were these classes introduced?

(4) Geographical distribution of 344 districts by regions. The 344 districts were located on base maps obtained through the courtesy of the Pennsylvania State Planning Board. By means of these maps and the study of a preliminary report of the Board and a volume by Murphy¹ these districts were grouped by regions.

Information from Small Samples of 48 and 36 Districts

Of the 344 districts, 48 were singled out for intensive field study. Of these 48 districts, 36 made up the special small sample subjected to special treatment. Observations based on the small sample were derived from field study. Surveys involved the use of the following forms and schedules:

(1) *A Guide for Self-Appraisal of School Systems.* This manual is discussed in some detail in Chapter I.

(2) *What Should Our Schools Do?—A Poll of Public Opinion on the School Program.* This was distributed with an explanatory note

¹ Murphy, Raymond E. *Pennsylvania, A Regional Geography.* Harrisburg: The Pennsylvania Book Service, 1937.

to all teachers in small sample districts. One hundred additional forms with covering letters and self-addressed return envelopes were distributed to adults in each community through school children. Teachers of three representative classrooms in each district supervised the distribution and collection of these forms. This form is available in printed form from the Bureau of Publications, Teachers College, Columbia University.

(3) *Teacher Information Sheet*. This was distributed with the explanatory note and the poll (No. 2 above) to all teachers in small sample districts, and returned unsigned in sealed envelopes. This sheet contained questions of a factual nature with reference to grade or subject taught, years of experience (total and in district), age, sex, years training, nativity, marital status and professional training institutions attended. Other questions were:

Have you recently undertaken any experiments or made changes in your work? Please list briefly.

What are some of the changes or new things which you would like to do in your work?

Where did you get the ideas for changes you have made or would like to make in your work?

What are some of the things which you think should be done for the school system as a whole?

What in your opinion have been the chief obstacles in the way of making these changes?

In your experience in this school system have you known of any instances of parent or community opposition to new policies or practices? Please describe briefly.

As you see it what are the rules for success for a teacher in your community?

(4) *Information Sheet for Parents and Citizens*. One hundred copies were distributed in each community of small sample, with covering letter and self-addressed return envelope and the poll (No. 2 above). It contained questions of a factual nature with reference to number of children, their attendance in school, age of respondent, occupation, nativity, home ownership, and schooling. Other questions were: How or through what means do you learn what the schools are doing? Do you think your community is as good a place to live in as any other? What are its main advantages?

(5) *McCall Educational Background Questionnaire*.² Forty copies were distributed in each community of small sample. The distribution of these questionnaires is explained by the following instructions which accompanied each bundle:

1. Place in hands of any member of staff who usually administers tests. Instructions for administering are found in the Manual. They are easily followed.
2. Have Questionnaires distributed to representative groups of *Grade 9* students. If ninth grade home rooms or classes are grouped according to ability, course of study followed, or geographical location of home, better randomization is to be had by taking a group in a non-selective English or Science class, for example, or hand picking a group of forty (boys and girls) by choosing the first forty on the register of all ninth graders in alphabetical order of last names.

(6) *Financial and Teacher Personnel Data Sheet*. One copy was received from each district in the small sample. It contained factual information on school expenditures, state aid, assessed valuation, assessment ratio, tax rates, number of teachers, enrollment, and attendance (public and private). These statistics were recorded for the academic years 1930-31, 1933-34, 1935-36, and 1937-38. Additional blanks on this sheet contained information from which teacher turnover was computed.

(7) *Influential Citizens Interview Sheet*. This was an informal record form for keeping notes of descriptive nature on the community, used in interviews with superintendents, board members, newspaper editors, business and industrial leaders, etc. It contained space for notes on dates of crises or important events in the development of the community, dates of crises or important events in the development of the school system, nature of industry and occupations and relationships of local schools with the State Department or other school districts in the State.

(8) *History Sheets for Nine Adaptations*. This form was used in recording and digesting information from detailed study of the nine adaptations in the small sample communities. It is reproduced below with manual followed by all field workers.

² McCall, William A. and Herring, John P. *Educational Background Questionnaire*. New York: Laidlaw Bros., 1936.

Small Sample Study of Nine Adaptations

Since chapters in this report dealing with participants and processes have drawn heavily upon analyses made of one form, the adaptability *history sheet*, we reproduce it here. Its use may be understood by examining the Manual of Explanation which also is reproduced.

Date

HISTORY SHEET FOR SCHOOL DISTRICT ... COUNTY ...

Interview

- 1a.
- 2a.
- 3a.
- 4a.
- 5a.

TABULAR DATA

Tabular
Identification Item Code Source
Number

CHARACTERISTICS

- 1. Introduced
- Discontinued
- 2. Genuineness
- 3. Cost
- 4. Peculiarities

PARTICIPANTS

- 5. Board
- 6. Superintendent.
- 7. Teachers
- 8. Parents
- 9. Pupils
- 10. State
- 11. Federal
- 12. Non-local
- 13. Local for
- 14. Local against
- 15. Ed. literature
- 16. Ed. institutions.

Sources of Information

- a. Interview
- b. Newspaper files
- c. Scrap book
- d. Minutes
- e. Annual reports
- f. Bulletins to teachers
- g. Memos to board
- h. State documents
- i. Non-school publications
- j. Questionnaire

ANECDOTES AND ILLUSTRATIONS

PROCESS

17. Emul. and I.C.
18. Herding
19. Auxiliary
20. Local study
21. Local stimulus
22. Ext. stimulus
23. Spontaneous
24. Refraction
25. Int. vs. Ext.

MANUAL OF EXPLANATION TO BE USED WITH ADAPTABILITY HISTORY SHEETS

INTERVIEW BLANKS

Interview

Blanks 1a, 2a, 3a, and so forth, are principally for the purpose of jotting down leads for individual interview on the particular adaptation being studied. Note that each adaptation is to have a separate sheet. The code (1a, 2a, 3a, etc.) may be conveniently jotted down in the column headed *Source* in the tabular data.

SOURCES OF INFORMATION

The items listed in the upper right-hand corner of the sheet are for the convenience of indicating what sources were responsible for information in the tabular data. Already reference has been given to the code, 1a, 2a, and so forth, to be used with individuals interviewed.

ITEMS TO BE LISTED IN TABULAR FORM

There are 25 items under the three main headings, *Characteristics*, *Participants*, and *Process* in the section of the history sheet labelled *Tabular Data*. The following paragraphs are an explanation of the meaning of these items and the code to be used in field investigation.

Introduced (1). This item refers to the year the adaptation first became operative in the school system. It does not refer to the time when the adaptation was first considered. For example, a kindergarten might have been discussed several years before it had actually been introduced into the school system. The date or year is to be placed under the column headed *Code*, and this is to be the date when first introduced and actually put into operation in the school. If the school has not made the adaptation, use the symbol O. Along with this item is another item, *Discontinued*, which refers to the date when the practice was discontinued, if discontinued. In field work, a date should be placed in the *Code* column if the practice was discontinued; otherwise, a dash should

be put in the proper space to indicate that it definitely *was not* discontinued.

Genuineness (2). The genuineness codings vary with the adaptations. The codes to be entered for this item are as follows:

I. *Kindergarten Code*

- (A) Public school kindergarten with all features.
- (B) Kindergarten in public school building, but cost met by agency other than parents and other than public school system.
- (C) Kindergarten in public school building, equipment and teacher cost met by tuition.
- (O) No kindergarten adaptation.

II. *Reorganized High School Code*

- (A) Guidance features in junior high school grades, subject promotion, exploratory courses, composite two or three year courses, extracurricular activities for seventh and eighth grades, special facilities on junior high school level, and close relation between ninth and seventh and eighth.
- (B) Guidance features, subject promotion, extracurricular activities, elective subjects and special facilities on junior high school level.
- (C) Only features of junior high school work are subject promotion, electives, and special facilities on seventh and eighth grade levels.
- (D) Form of organization other than 8-4, but in rehousing only—no difference in seventh and eighth grade educational programs.
- (O) No adaptation—8-4 organization.

III. *Special Classes Code*

- (A) Orthogenic class or classes with specially trained teacher and adapted instruction.
- (B) Orthogenic class or classes without essentially different instruction or curriculum.
- (C) Segregation, but mere special room grouping of handicapped—no special program whatsoever.
- (O) No special classes.

IV. *Homemaking for Boys Code* (Junior or Senior High School only)

- (A) Completely outlined course for boys (and girls) especially designed and for which there is place in curriculum.
- (B) Boys are actually taking regular domestic arts work with girls in classes designed primarily for girls.
- (C) Camp cookery, etc., class meeting only once a week or so—was boys' home-making club.
- (O) No home-making opportunities for boys other than incidental in other classes, such as social studies or science.

V. *Adult Leisure Classes Code*

- (A) Extensive offering of adult leisure classes under public school auspices.
- (B) Adult informal work limited to occasional forums, dramatics or musical presentations—all other leisure activities offered only in formal classes.
- (C) Adult informal work in public schools, only leadership provided by district, or financed by outside group, such as W.P.A.
- (D) Only formal work for adults in evening or trade school.
- (O) No adult classes under direct auspices of public school system. (If outside agencies offer such activities, list under item No. 4 below.)

VI. *Extracurricular Code (High Schools only)*

- (A) Variety of activities regularly scheduled, and connected with guidance—all or most children and teachers participating—coordinated with main objectives of school, or high school on activity basis, with all or part of these things curricularized.
- (B) Extensive program, some scheduling, but program no different than if stuck on end of day. Occasional coordination with subject-matter fields, etc. Possibly in part credit-granting arrangement.
- (C) Rather good program carried on after school hours. Broad scope of opportunities for children and feeling of importance of these activities in planning the influence of the school and lives of children. No guarantee of service reaching all children, or service being utilized to enrich lives of children on guidance basis. Organization haphazard.
(Cj) Adjustment only on junior high-school level.
- (O) Only usual extracurricular activities after school or scheduled in home room or activity period in very meagre way.

VII. *Elimination of Elementary School Final Examinations Code*

- (A) No final exams as such in elementary schools. Tests and measurements used only as basis of pupil diagnosis and remedial treatment. Promotion policy geared to fitting school to child. Modern marking system.
- (B) No final exams in elementary school classes, but children marked and passed or failed on basis of marks left to teacher on various bases.
- (C) No exams in primary department, but exams in upper elementary grades, promotion on basis of marks from exams and daily work.
- (D) No final exams, but period tests averaged to produce measured rating for class work.
- (O) Final exams in elementary schools.

VIII. *Integrated Curricula in High Schools Code*

- (A) Any single incidence of merged or fused courses, such as English and history integration, broad fields or core curriculum on the secondary level.
- (O) No merged courses.

IX. *Supplementary Reading Code (Elementary Schools only)*

- (A) Extensive reading by children on purposeful basis tied up with projects or other activities in elementary school curricula.
- (B) Provision made through public library, school library, or classroom libraries for extensive reading of children, but as an end in itself, and not related to other parts of the educational program except in a professed but indirect correlated way.
- (O) Very little reading other than supplementary reading in the old sense, of few assigned readers to children, or extensive reading done only by means of uniform assignments from basic text.

Cost (3). In this section we are interested not only in whether or not the item cost money, but also whether or not in the minds of the individuals concerned the item cost money. Consequently, the following code has been used:

CN—This means that the item involved an additional expenditure of district funds, but this increase in expenditure was not met by opposition.

CO—This code to be used where the item involved an increase in expenditure but where there was definitely opposition to the introduction of the adaptation because of its cost.

NC—Refers to those items in which no immediately evident additional cost was involved actually or in the minds of those concerned.

Peculiarities (4). It is the purpose of this item to make a record of any anomalies in the *need* or the impingement of the need for an adaptation. We know that some school systems have introduced certain innovations not as the result of any underlying vigor that would indicate adaptableness but simply because local circumstances strongly press on the school system in a way which forces in the adaptation inevitably; thus in some cases, special classes for the mentally handicapped might appear not because of any original and forward-looking activity of the school organization, but rather as the result of a high percentage of youngsters of this type in a large industrial community of low cultural level. In coding this item, symbols will have to be developed. This type of thing has not been covered in previous field studies. The code will necessarily vary for the different adaptations studied. So far, the following code, for example, has been used in connection with the adult education adaptation:

- I—A community predominantly industrial with a high rate of illiteracy and a high proportion of foreign-born population.
- H—A high-level residential community with many opportunities for leisure activities for adults.
- NS—Non-school agencies provide extensive leisure programs.
- N—Is not evident. Whatever the code to be followed in the other adaptations, *N* is in all cases to represent communities in which the peculiarities of need for the adaptation are *not evident*. Note that both the circumstances representing excessive demands for the adaptation and the circumstances representing excessive lack of demand for the adaptation are to be recorded.

Board, Superintendent, Teachers, Parents (or citizens as individuals), *Pupils* (5, 6, 7, 8, 9). These participants within the structure of the local school unit itself are all coded by means of the following symbols:

If School System has made the Adaptation

- A—Initiated the activity in the school system. By this we mean that the original impetus to the movement, even though involving the support of other groups, came from here. It is recognized that two individuals or groups may cooperatively initiate the activity.
- B—Indirectly supported the introduction of the project, as distinguished from initiating it.
- C—Favorably followed the lead of other individuals or groups.
- D—Neutral attitude and interest and no part in the introduction of the project other than the role involved after its introduction.
- E—Was ignorant of the need prior to its introduction, as distinguished from being aware of it, but not interested (D above).
- F—Some for and some against (applies to groups only)—those opposing it had the upper hand prior to initiation or those most concerned oppose.
- G—Definitely opposed to the adaptation.

If School System has not made the Adaptation

- A—Now actively engaged in work to develop adaptation. Not only enthusiastically in favor of the adaptation but sufficiently active so that if adaptation should be made in near future it would probably be attributable to the party concerned.
- B—Participants now in favor of adaptation but not now engaging in promotion of project and no evidence of possible future activity other than as followers.
- C—Aware of the need and the possible forms of making adaptation with favorable attitude towards it. Not enthusiastic.
- D—Aware of need. Neutral attitude and interest and no evidence of possible future activity in promotion of project.

E—Ignorant of the need of the adaptation.

F—Some for and some against (applies to groups only)—those opposing it have the upper hand or those most concerned oppose.

G—Definitely opposed to the adaptation.

State (10).^o In this item reference is made to the role of the state government through the operation of the state department, to legislation, and so forth, in the introduction of the adaptation in that particular community. In this item the following code is used:

A—State assumption of the service. This probably will not be encountered in the Pennsylvania study. It refers to cases where the state takes all of the initiative in the matter and provides for the financial support, administration and responsibility.

M—This stands for state mandate. The term used here applies to those situations in which the state institutes adaptation by law or by administrative fiat. Few instances are to be expected of this in the nine adaptations being studied in Pennsylvania.

S—This is state stimulation. Here the state has the primary interest in diffusing the adaptation throughout the state. It is done by such devices as earmarked state aids encouraging supervision and stimulative activities of the state department, and the like. The initial move in this code must come from the state itself and not from within the local school system.

C—In this category the state and the local unit are working together. The initial interest is either not possible to delineate or it might have come either from within the local unit or from state official services. In either case the development follows a give and take relationship between official state agencies and the local unit.

L—No direct influence of the state department or the official central agencies.

Code for Remaining Participants and Process Items (Items 11-24, inc.)

An explanation of the remaining items follows below. The code is the same for each with the exception of Item 25, referring to whether the adaptation originated through intra-school or extra-school forces.

+—This symbol is to be used where there is evidence that the type of process took place, or where the particular participating mechanism was known to have had influence in the process.

—To be used where there is definite evidence that the process did not exist or that the participants did not have influence.

0—This symbol, zero, is used when the community has not yet instituted the adaptation in question. However, it is to be used *only*

^o Cf. Mort-Cornell, *Adaptability of Public School Systems*, pp. 51-52; 110-112.

for items 1, 2, and 19-25, inclusive. Even though the adaptation has not been made, the nature of activity of possible participants is needed. This requires other symbols. Items 19-25 obviously cannot be checked if no process of adaptation has taken place in which case they are marked 0.

Int. vs. Ext. (25). It has been found that the pressure for certain activities in public schools comes directly from elements of the culture pattern outside of the official school setup (which in our study is defined so as to include only administrative officers, teachers, pupils and the Board of Education). In many communities, for example, it has been observed that adult education was first developed through the lead of religious organizations, private clubs, and the like, entirely beyond the scope of influence of the public schools themselves. Later the demands developed to such an extent that public schools were forced to take these activities over. In such cases the precipitating influence would be considered as extra-school. The other type of precipitating influence is obvious. When the idea resulted directly through teachers, principals, superintendents, board members and possibly pupils, all within the school community, then it is considered to have been an intra-school adaptation. The symbols entered are as follows:

Ex—For extra-school.

Int—For intra-school.

Explanation of Items 11-24

Federal (11). This refers to any influence of the federal government in the development of the adaptation. So far, the influence has usually been of the nature of service functions from the United States Office of Education, or financially, as frequently noted with reference to adult education, by means of various federal grants.

Non-local (12). The item is not entirely self-explanatory. The point to be considered here is whether or not non-official groups (this excludes the federal government and the United States Office of Education, the State Legislature and the State Department of Education) of a non-local variety have been operating. Watch, for example, the influence of the National Kindergarten Associations in the kindergarten, and the Y.M.C.A., an organization of nation-wide scope, in connection with adult education.

Local for (13). This item offers information as to whether local non-official groups in a community have had influence on the adaptation favoring it. Groups considered here must be exclusively local groups. As far as the expression of the particular policy involved is concerned, usually one would include influence of the local Chamber of Commerce here rather than in Item 12, except in so far as the interest of the Chamber of Commerce is one such as would be expressing a national point of view of affiliated organizations all over the United States. On the other hand,

the influence of the American Legion is often found to be an expression of nation-wide policies of that organization. The influence in these cases would be considered obviously not of local scope and would be entered in Item 12 above.

Local against (14). This applies exclusively to local groups as in Item 13, but groups which have evinced activity *in opposition* to the adaptation.

Ed. Literature (15). Here we record any evidences of educational literature having directly influenced the development of ideas in a community leading toward the adaptation. If the influence is indirect, the possibility of entering the item not here but in Item 18 below should be considered (Item 18 refers to herding).

Ed. Institutions (16). Frequently in Pennsylvania we find universities and teachers colleges a direct source of influence either through extension or field work of these organizations, or through the instruction of teachers now in the system who received training in these institutions. Evidence of such influence is to be indicated here.

Emul. and I.C. (17). Where *emulation* and *invidious comparison* have played a part in introducing the change, appropriate entries are to be made here. The two ideas, emulation and invidious comparison, are very much the same; therefore lump together. The idea of emulation has to do with a community's following a pattern set by some other community. This may often be done entirely without motives of keeping up with the Joneses. A study of local problems might actually reveal the need for curriculum revision or a building program. The board of education or the superintendent might therefore, as is often the case, survey what has been done in other communities for purposes of getting ideas. In Pennsylvania it has been known that school boards have gone far afield in this way. One school board sent a superintendent beyond the limits of the state to study what had been done in other schools, without there being evidence whatsoever of *invidious comparison*. Invidious comparison is more than emulation. It involves the community which does a thing simply for the sake of having a school just as good as township or city. Pittsburgh might like to keep up with Philadelphia. Lansdowne might like to have as good a school system, as a whole, as the adjoining district of Upper Darby. Rivals might be neighbors and they might not be neighbors; but as long as the rivalry is present we call it *invidious comparison*.

Herding (18). Often this is the only explanation of an adaptation's being introduced into a community. The community is caught up on the crest of a wave, the thing is spreading like wild fire, and the pressure of the growth of the adaptation is forcing it into communities.

Auxiliary (19). This item refers to cases of the adaptation coming in as a concomitant to some other change in the school program. Reor-

ganized high schools frequently appear not as a result of some conscious attempt to alter provisions made for youth and adolescence, but as a result of pressing housing problems. This would be an illustration of auxiliary change.

Local Study (20). This process is considered to be present when anything which might be classified as involving an element of research regarding local need within the community itself and instituted within the confines of the local community has been made. Even though the study of local conditions played an early part in the bringing about of the adaptation, many influences outside of the local community might be involved before the actual institution of the change. Although there was local study, the state, through stimulating grants, might have induced the change or there might well have been herding, emulation and a number of other factors operating.

Local Stimulus (21). Here we are interested in the initial precipitating influence. This item should be considered with Item 25 below. The latter distinguishes between local stimuli within and without the structure of the school system itself. The item under present discussion offers an opportunity to distinguish between sources of stimuli within the community itself, whether within the school system or outside the school system. Entries here are to be made in contrast to entries in the following item.

Ext. Stimulus (22). Here it is desired to know whether the precipitating influence was outside the local community. It is quite possible that some difficulty will be encountered in distinguishing between stimuli within the community and stimuli outside the community. It is of importance to know that an entry might be made for non-local groups, the federal government, or the state government above, showing that these agencies were participants in the introduction of the adaptation but the initial stimulus might not have originated from such non-local organizations, so that although an entry here might indicate the presence or absence of initial stimulus from outside the community, it is possible for most any combination of the participants to have been involved.

Spontaneous (23). Adaptations recorded here will be purely of the inventive variety. Obviously they might be expected to appear early in the history of the adaptation, although studies today have indicated the high probability of finding not only parallel invention, but evidences of the development of ideas regarding school practice long after similar ideas had taken hold in other places but entirely in ignorance of them. The particular form that the adaptation takes might involve sufficient originality to warrant a positive entry here. Special attention should be given to adaptations which were precipitated by local stimuli and which involved local study (Items 20 and 21) for possibilities of spontaneous innovation.

Refraction (24). This item is used with reference to changes in the purpose of an adaptation. The need might be the same but in the minds of those justifying the practice, the justification is no longer the argument originally proposed. Jessup in his study showed, for example, that there had been refraction in vocational education. Those fighting the battle of getting this type of non-academic instruction into the schools had the trade-training objective in mind. As an educational philosophy developed, with a broader view within the provision itself, educators came to accept vocational courses not for the trade-training value primarily, but largely because of a psychology of education which accepted manual activity.

ANECDOTES AND ILLUSTRATIONS

Obviously the simple codification of items noted above for tabular presentation does not include many of the important slants involved in the way adaptations are made in communities. Many things are not known about the processes noted above. The space, *Anecdotes and Illustrations*, is provided for jotting down notes: (1) which better explain the actual method by which the change came into the local school system, and (2) which provide important new information on how these participants or processes actually combined as ingredients in the creation of changes in a school system.

The Legal and Administrative Structure of the Pennsylvania School System

It has been noted that Pennsylvania is a strong local initiative state and yet stands among those that have developed the State Department of Education to an unusual degree. This section gives a somewhat detailed picture of the legal and administrative structure of the system to serve as a background for the materials presented in the text. It presents little if anything that will be new to the reader familiar with the Pennsylvania school system.

The Legal Status of the Pennsylvania Schools

EDUCATION AND THE STATE CONSTITUTION

Article X of the Constitution of the State of Pennsylvania, ratified December 16, 1873 and effective January 1, 1874, is devoted to the subject of education.¹ Section 1 provides for the public school system of the State. "The General Assembly shall provide for the maintenance and support of a thorough and efficient system of public schools wherein all the children of this Commonwealth above the age of six years may be educated, and shall appropriate at least one million dollars each year for that purpose."² Section 2 prohibits the expenditure of public school funds in the support of sectarian schools, and Section 3 declares women to be eligible to offices under the school laws.³

These provisions of the Constitution determine the legal position education holds in the scheme of government. Education has held a place of basic importance from early colonial times. It was provided for in William Penn's *Frame of Government* signed in England in 1682,⁴ and it received attention in the first laws provided

¹ *Purden's Pennsylvania Statutes*, pp. 420-422. Philadelphia: George T. Bisel Co., 1930.

² *Ibid.*, p. 420.

³ *Ibid.*, p. 422.

⁴ Shunk, Francis, *Conventions of Pennsylvania*. Harrisburg: John S. Wiestling, 1825.

for the province.⁵ The Constitutions of 1776 and 1790 took account of it,⁶ as did the Constitution of 1838.⁷

The Constitution of Pennsylvania, then, as the fundamental expression of the will of the people, makes of public education one of the chief affairs of the government of the Commonwealth.⁸ Article X recognizes public education as one of the distinct obligations of the state and makes of it an indispensable governmental function. While in the abstract it is not as absolute an essential to government as taxation, law enforcement and preservation of the peace, yet by express provision it is ranked with them as an element necessary for the sustenance of and a bulwark required for the preservation of the modern democratic state.⁹ The provision and support of the system of public schools is a positive mandate to the General Assembly, one which cannot be ignored, bargained away, fettered, or legislatively extinguished.¹⁰ This constitutional provision is the fundamental policy of the state and underlies and is the inspirational source of the school laws of the state; and though such statutes contain individual policies, they must all conform to the cardinal constitutional purpose which is to provide an efficient education for the children of the Commonwealth.¹¹

LEGAL POSITION AND AUTHORITY OF THE LEGISLATURE RESPECTING EDUCATION

The General Assembly of Pennsylvania is not only vested with the duty of establishing and supporting a system of public schools, but is charged with the obligation of maintaining a thorough and efficient one. In providing this school system and in attaining this

⁵ *Ibid.*, p. 29; *Charter to William Penn and Laws of the Province of Pennsylvania*, p. 142. Harrisburg: Lane S. Hart, State Printer, 1879.

⁶ *Constitutions of Pennsylvania*, pp. 194 and 238. Harrisburg: William G. Ray, State Printer, 1916.

⁷ *Purden's Pennsylvania Statutes*, op. cit., p. 420.

⁸ *Board of Education v. Shayer*, 13 Pa. Dist. 170 (1904); *Board of Public Education v. Ransley*, 209 Pa. 51, 58 A. 122 (1904); *Malone v. Hayden*, 329 Pa. 213, 197 A. 344 (1938).

⁹ *Malone v. Hayden*, 329 Pa. 213, 197 A. 344 (1938).

¹⁰ *Malone v. Hayden*, *Idem.*; *Ehret v. School District of Borough of Kalp-mont*, 333 Pa. 518, 5 A. (2d) 188 (1939).

¹¹ *Ehret v. School District*, *Supra.*; *Commonwealth ex rel. Hetrick v. School District of City of Sunbury*, 6 A. (2d) 279 (1939).

thoroughness and efficiency, the Legislature has a full measure of power, limited only by any express prohibitions which may be found elsewhere in the Constitution; and in this sphere of operation, the General Assembly must at all times maintain for itself full freedom of action which it cannot limit by its own acts.¹² The legislative power respecting education is, indeed, a part of the state's most extensive sphere of authority known as the police power,¹³ a principle which has received the approval of the United States Supreme Court.¹⁴ The Legislature may act directly in carrying out the constitutional mandate concerning education but usually does so through the delegation of powers and duties to officers, school districts or municipalities, and in so doing it may make any arrangements it may deem wise and may change any organization it has devised, but cannot divest itself of the power to withdraw authority which has been delegated.¹⁵

The rule for the interpretation of the powers of a state legislature under a state constitution is totally different from that which is applicable to the powers of Congress under the Constitution of the United States. The latter instrument must have a strict construction; the former a liberal one. Congress may only do that which is authorized, while the State Assembly has jurisdiction of all subjects not prohibited.¹⁶ The General Assembly of Pennsylvania may arrange the public school system as it wishes, may change, modify or abolish any part of it at any time; it may provide officers, determine their qualifications and the methods of their selection, and their powers; may increase or decrease state school taxes regardless of the protest of specific localities or taxpayers.¹⁷

¹² *Malone v. Hayden*, 329 Pa. 213, 197 A. 344 (1938); *Ehret v. School District of Borough of Kulpmont*, 333 Pa. 518 (1939); *Commonwealth v. Hartman*, 17 Pa. 118 (1851); *Minsinger v. Rau*, 236 Pa. 327, 84 A. 902, Ann. Cas., 1913 E., p. 1324 (1912).

¹³ *Stull v. Reber*, 215 Pa. 156, 64 A. 419 (1906).

¹⁴ *Interstate Consolidated Street Ry. Co. v. Massachusetts*, 207 U. S. 79, 28 S. Ct. 26 (1907).

¹⁵ *Malone v. Hayden*, *Commonwealth v. Hartman*, *Minsinger v. Rau*, *Supra.*; *Board of Public Education v. Ransley*, 209 Pa. 51, 58 A. 122 (1904).

¹⁶ *Commonwealth v. Hartman*, 17 Pa. 118 (1851).

¹⁷ *Malone v. Hayden*, 329 Pa. 213, 197 A. 344 (1938); *Christiania Borough School District v. Sadsbury Twp. School District*, 18 Pa. Dist. 358 (1908); *Minsinger v. Rau*, 236 Pa. 327, 84 A. 902, Ann. Cas. 1913 E. 1324; *Weiss v. Ziegler*, 327 Pa. 100, 193 A. 642 A. L. R. 102.

Experiments may be launched or terminated, as, for example, teacher tenure systems;¹⁸ curative statutes may be enacted to correct defects in arrangements formerly effected.¹⁹ School districts may be endowed with all the usual powers and duties, but may also be vested with unusual ones, as for example, to act as a board of health, so long as the power has a substantial bearing on the conduct of the state's educational enterprise.²⁰ Although the Assembly cannot delegate its powers to make laws, it can make a law to delegate a power to determine a state of things upon which the execution of laws depends; e.g., the Legislature may set up a state council to approve or disapprove annexation proposals.²¹

With respect to the public school system, as in any other area, the Pennsylvania General Assembly cannot, of course, violate the express prohibitions of either the state or the federal constitutions. If laws are within constitutional bounds, the courts will not interfere on the grounds of wisdom, though legislation must fall within the general policy of the state respecting education as indicated in Article X of the Constitution,²² and the governor, has, of course, his veto power.²³ In the organization of the school the Assembly cannot make unreasonable and discriminatory classifications,²⁴ nor can it violate the constitutional prohibition of local or special legislation.²⁵ It is an unconstitutional delegation of legislative power, a violation of the prohibition of taxation without representation to place unlimited power of tax levy in the hands of a local board which has not been elected by the people,²⁶ and, of course, public

¹⁸ *Ehret v. School District of Borough of Kulpmont*, 333 Pa. 518, 5 A. (2d) 188 (1939).

¹⁹ *In re Chester School District's Audit*, 201 Pa. 203, 151 A. 801 and note 25 A. L. R. 1136 (1930).

²⁰ *Nether Providence School District v. Montgomery*, 227 Pa. 370, 76 A. 75 (1910).

²¹ *In re Baldwin Twp. Annexation*, 305 Pa. 490, 158 A. 272, and 305 Pa. 499 158 A. 275 (1931).

²² *Malone v. Hayden, Ehret v. School District*, *Supra*.

²³ *Commonwealth v. Barnett*, 109 Pa. 161, 48 A. 976, 55 L.R.A. 882 (1901).

²⁴ *In re Sugar Notch Borough*, 192 Pa. 349, 43 A. 985 (1899).

²⁵ *Commonwealth v. Gilligan*, 195 Pa. 504, 40 A. 124 (1900); *Chalfant v. Edwards*, 173 Pa. 246, 33 A. 1048 (1895); *In re Merger of Reed Twp. School District*, 46 Dauph. 193 (1939).

²⁶ *Wilson v. School District of Philadelphia*, 328 Pa. 225, 195 A. 90, 113 A.L.R. 1401 (1937). See also *Minsinger v. Rau*, 236 Pa. 327, 84 A. 902, Ann. Cas. 1913 E., 1324.

school funds may not be expended in the support of sectarian education.²⁷

LEGAL RELATIONSHIP BETWEEN THE LOCAL SCHOOL DISTRICTS
OF PENNSYLVANIA AND THE STATE

The local school districts of Pennsylvania have been established and their boards of education created by the General Assembly to act as its agents in carrying out the constitutional mandate of Article X and they are therefore subdivisions of the State, wholly controlled by it,²⁸ and this is true from the smallest rural school district to the largest city district and without regard to any degree of relationship which may have been provided between city schools and the municipalities in which they are located.²⁹

These districts have been given a certain corporate status by the State. Although to bring them within the operation of certain constitutional or statutory provisions or regulations they have sometimes been classed as municipal corporations, they are not, properly speaking, municipal corporations, but rather public quasi-corporations whose corporate existence falls wholly within the confines of their single purpose: the administration of public education as agents of the State.³⁰ These corporations draw all of their powers from the State and have only that authority expressly granted to them, or such as may be derived by necessary implication from the powers expressly granted.³¹ Within the constitution, therefore, the

²⁷ *Hyson v. Gallitzin Borough School District*, 164 Pa. 629, 30 A. 482, 26 L.R.A. 203, 44 Am. St. Rep. 632 (1894).

²⁸ *Christina Borough School District v. Sadsbury Twp. School District*, 18 Pa. District 358 (1908); *Erie School District v. Fuess* 98 Pa. 600, 42 Am. Rep., 627 (1881); *Lyon v. Strock*, 274 Pa. 541, 118 A. 432 (1922); *In re Baldwin Twp. Annexation*, 305 Pa. 490, 158 A. 272 (1931).

²⁹ *City of Pittsburgh v. Sterrett Subdistrict School*, 204 Pa. 635, 61 L.R.A. 183 (1903); *Minsinger v. Rau*, 236 Pa. 327, 84 A. 902, Ann. Cas. 1913 E, 1324 (1912); *Wilson v. School District of Philadelphia*, 328 Pa. 225, 113 A.L.R. 1401 (1937); *Melodon v. School District of Philadelphia*, 328 Pa. 457, 195 A. 905 (1938).

³⁰ *Barnet v. School Directors*, 6 Watts and S. 46 (1843); *Wharton et al. v. School Directors*, 6 Wright 358 (1862); *Commonwealth v. Beamish*, 81 Pa. 389 (1876); *Lehigh Coal and Navigation Co. v. Summit Hill School District*, 189 Pa. 75, 137 A. 140 (1927); *Smith v. School District of Philadelphia*, 334 Pa. 197, 5 A. (2d) 535 (1939); *Lyon v. Strock*, 274 Pa. 541, 118 A. 432 (1922).

³¹ *Mulligan v. Hanover School District*, 241 Pa. 204, 88 A. 362 (1913);

General Assembly exercises full control over these, its agents, including such matters as boundary changes, disposition of funds, and the levy and collection of taxes.³²

The relationship of the public school district to the Commonwealth is also seen in the cases in which districts have been sued for damages as a result of school injuries. The rule ordinarily applied is that school districts as agents of the state engaged in a governmental enterprise share the immunity of the Commonwealth to such liability.³³

THE LEGAL POSITION OF THE CITIES OF PENNSYLVANIA

WITH REGARD TO THE STATE'S EDUCATIONAL ENTERPRISE

Whether or not and to what extent the municipalities of the State are to play a part in the administration of public education, or whether a system of joint control by cities and school districts is to be employed, or whether educational administration shall be wholly centered in separate school corporations or other state agencies, are questions entirely in the hands of the State Legislature. The only limit to the legislative authority in this regard is that there must be no violations of express constitutional prohibitions, as, for example, those forbidding the passage of special local laws or the illegal delegation to cities of legislative power.³⁴ To cities which object to this extensive state control, the answer is that education

Gilbertson School District v. Morris, 290 Pa. 7, 137 A. 804 (1927); *Charleroi Lumber Co. v. School District of Borough of Bentleyville*, 6 A. (2d) 88 (1939); *Erle School District v. Fuess* 98 Pa. 600, 42 Am. Rep. 627 (1881).

³² *In re Baldwin Twp. Annexation*, 305 Pa. 490, 158 A. 272 (1931); *Christina Borough School District v. Sudsbury Twp. School District*, 18 Pa. Dist. 358 (1908); *Duff v. Perry Twp. School District*, 281 Pa. 87, 126 A. 202 (1924); *Minsinger v. Rau*, 236 Pa. 327, 84 A. 902, Ann. Cas. 1913 F., 1324 (1912); *Wilson v. School District of Philadelphia*, 328 Pa. 225, 195 A. 90, 113 A.L.R. 1401 (1937).

³³ *Mellodon v. School District of Philadelphia*, 328 Pa. 457, 195 A. 905 (1938); *Carlo v. School District of City of Scranton*, 319 Pa. 417, 179 A. 561 (1935); *Ford v. School District of Kendall Borough*, 121 Pa. 543, 15 A. 812, 1 L.R.A. 607 (1888); *Wallace v. School District of Pittsburgh*, 316 Pa. 388, 175 A. 411 (1934); *Goldstein v. School District of Philadelphia*, 329 Pa. 71, 196 A. 863 (1938).

³⁴ *Chalfant v. Edwards*, 173 Pa. 246, 33 A. 1048 (1895); *In re Baldwin Twp. Annexation*, 305 Pa. 490, 158 A. 272 (1931); *Pittsburgh's Petition*, 138 Pa. 401, 21 A. 759 (1890); *Commonwealth v. Gilligan*, 195 Pa. 504, 46 A. 124 (1900).

is a state affair—a matter for the people of the whole State—and that there is no inherent right of local control of education.³⁵

Pennsylvania legislative policy has been to separate municipal and educational administration, a policy currently in effect.³⁶ Only in the cases of Philadelphia and Pittsburgh has the State in times past arranged some degree of joint city and school district control of educational administration, largely with respect to vesting the city councils with the power and duty of raising the school funds. By the education law of 1911 control in this matter was returned to the school officials.³⁷ At all times, however, the school districts were separate corporations and, as was said in a Philadelphia case, the board of education was “not a creature of the city but an independent agency established by the state for the purpose of carrying out, in the first school district, the legislative will in all matters respecting the common or public schools. The officers of that board are in no sense the agents of the municipality.”³⁸ These relationships which have been changed from time to time in the past can, of course, be rearranged in the future.³⁹

When controversies arose in the past between municipal authorities and school officials, the courts tended to construe strictly grants of power to the cities and where doubt existed tended to support, as the legislative intent, control in the hands of the educational authorities and separateness of school and municipality.⁴⁰ Thus it has been held that the holding of title to school property by the city of Philadelphia did not give to city officials control over such property, the city being merely a “dry trustee,”⁴¹ and it has been held that the duty of the city to raise the funds for school purposes and the existence of a city purchasing department do not of them-

³⁵ *Minsinger v. Rau*, 236 Pa. 327, 84 A. 902, Ann. Cas. 1913 E., 1324 (1912).

³⁶ 24 *Purden's Penna. Statutes*, Ann. 21 *et seq.*

³⁷ *Ibid.* See especially Sec. 562, p. 144.

³⁸ *Bader v. City of Philadelphia*, 45 Pa. Super. 204 (1910).

³⁹ *Board of Public Education v. Ransley*, 209 Pa. 51, 58 A. 122 (1904).

⁴⁰ The old case of *Bowers v. Wright*, 4 Wkly. Notes Cas. (1877) which held that school officials and contractors were required to comply with a Philadelphia building ordinance in the construction of a school building, seems to be an only exception to this tendency.

⁴¹ *Bader v. City of Philadelphia*, *Supra.*; *McCullough v. City of Philadelphia*, 32 Pa. Super. 109 (1906); *Commonwealth ex rel O'Rourke v. Davis*, 199 Pa. 278, 49 A. 75 (1901).

selves give to the city control of the purchase of school supplies.⁴² In the case of *City of Pittsburgh v. Sterrett Subdistrict School*,⁴³ which declared invalid a city assessment of school property, it was held that unless the State Legislature has clearly and in explicit language granted the power to a city, it may not levy any tax against such a state agency as a school district. This tendency found legislative expression in the education laws of 1911 which almost completely separated city and school administration.

The Evolution of State Supervision

State supervision had its beginning in 1834⁴⁴ when the Secretary of the Commonwealth was made ex-officio "superintendent of all the public schools." In 1857⁴⁵ the two offices were separated and a "Superintendent of Common Schools" was appointed by the governor with the consent of the senate for a three-year term. According to the Constitution of 1874 the "Superintendent of Public Instruction" is made one of the eight officials who comprise the State Executive Department; the Constitution also provides he shall be appointed by the governor with the consent of two-thirds of all the members of the senate and that his term of office shall be four years. After he is appointed he shares, with judges of courts of record, immunity from removal at the pleasure of the power which appointed him. All other appointed officers of the state may be so removed. These constitutional provisions are still operative.

The School Code of 1911⁴⁶ established the first State Board of Education, consisting of six members, each appointed by the governor with the consent of two-thirds of the senate for six-year terms which were overlapping. In 1921⁴⁷ the name was changed to State Council of Education with a membership of nine members, each appointed for six years with overlapping terms, one member being appointed one year and two the next; the appointments are made

⁴² *Board of Public Education v. Ransley*, 209 Pa. 51, 58 A. 122 (1904); *Board of Education v. Shoyer* (1904), 13 Pa. Dist. 170 (1904).

⁴³ 204 Pa. 635, 61 L.R.A. 183 (1903).

⁴⁴ Laws of 1834, Act No. 102, pp. 170-170.

⁴⁵ Laws of 1857, Act No. 305, p. 263.

⁴⁶ Laws of 1911, pp. 309-461, Section 901.

⁴⁷ Laws of 1921, Act No. 366, p. 1014.

by the governor with the consent of two-thirds of the senate. The Superintendent of Public Instruction is a member ex-officio and President of the State Board of Education. He is a member ex-officio and President of the State Council of Education. He is also its "chief executive officer,"⁴⁸ which puts him somewhat in the position of being subordinate to himself.

The history of education in Pennsylvania is largely a history of the struggle between the forces trying to hold on to an intensely local control of education, which forces were traditionally strong, and the forces trying to establish centralized control, which forces were traditionally weak. In 1834 there was no school system and no free schools: education was for those who could afford it and for those who were stigmatized as the children of paupers.

The law of 1834 undertook to set up a system of public education. It established school districts and provided for school directors. The voters decided whether or not they would join the school system. If they decided not "to accept" they received no part of the state funds and would continue to have schools, if they had them at all, under the pauper law of 1809. If they decided "to accept," then the school directors controlled the schools and were responsible for such oversight as was given. The weight of tradition was so intensely local that in order to establish "a system" each district had to be free to do as it pleased about joining and, also, after it had joined; there was no uniformity and there were no standards. It was 1874 before the last district "accepted" and joined the system (forty years).

By a law of 1843⁴⁰ boards of directors were permitted to hire school inspectors who would relieve the board of its responsibility of direct oversight. Since this law was permissive it caused no disturbance. In 1854 the law required the school directors in each county to meet and elect a county superintendent of schools. This law was strongly resisted but the office has continued until the present.

In 1937 a law was passed creating a county board of school di-

⁴⁸ Administrative Code of 1929; (Laws of 1929, Act No. 175, pp. 177-342) Section 408.

⁴⁰ Laws of 1847, Act No. 95, p. 191.

rectors. The transition has been gradual from an extreme form of local control to the degree of centralized control which exists today. Innovations even in framework have usually been introduced on a voluntary and a permissive basis. Attempts at mandatory legislation have commonly been met by determined opposition. Several "progressive" laws were repealed soon after they were enacted. Few of them have been accepted without a struggle. "Fighting has always been good in Pennsylvania." Ingersoll once said, "The present is the child, and the necessary child, of all the past." This generalization has been exemplified over and over. One cannot understand the stubborn resistance to unification without knowing the origin of the people who settled in that region. "No other colony had the heterogeneous admixture of national, religious, social and political elements that poured into colonial Pennsylvania."⁵⁰ On the other hand, one cannot understand the emergence of the present school system if he neglects the messages and speeches of governors, the reports of state superintendents, the writings in educational publications, the work of various associations and commissions, and the activities of public-spirited men. The effect of the Ayer's Index should not be ignored, nor the work of the Code Commission of 1911, nor the report of the Educational Commission of 1907, nor the effect of the Ten-Year Program for Education, nor any one of a long list of forces.

Today, the local board of school directors is, as it has been, fiscally independent. But much of the control which the local board originally exercised is now in other hands. We have spoken before of the establishment of the county superintendency in 1854. Cities and boroughs of over 10,000 population were permitted to have superintendents in 1867.⁵¹ In 1871⁵² the required population was reduced to 7,000 and in 1881⁵³ it was reduced to 5,000. In 1885⁵⁴ townships with 5,000 population were also permitted to have district superintendents. By the School Code of 1911⁵⁵ each first and second

⁵⁰ Walsh, Louise C. and Walsh, M. J., *History and Organization of Education in Pennsylvania*, Preface, p. v. Indiana, Pa.: The Authors, 1930.

⁵¹ Laws of 1867, Act No. 35, pp. 51-57.

⁵² Laws of 1871, Act No. 359, p. 390.

⁵³ Laws of 1881, Act No. 104, p. 97.

⁵⁴ Laws of 1885, Act No. 17, p. 15.

⁵⁵ Laws of 1911, pp. 309-401, Sec. 1133 and 1214.

class school district was required to have a district superintendent and each third class district was permitted to have one. Third and fourth class districts were permitted to have supervisory principals, provided the third class district did not choose to have a district superintendent. Assistant county superintendents and assistant district superintendents have also been provided. These various supervisory officials have taken over many of the functions formerly exercised by local school boards. It seems unwise, on the basis of the law, to try to allocate to each his particular authority and responsibility.

The State Department of Education is housed in one of the finest buildings of the capitol group. A recent organization chart (see Figure 29) shows some 53 officials and 120 boards. The scope of their services ranges from the traditional state department services of collecting statistics and computing state aid, on the one hand, to activities designed to improve instruction and to the censoring of moving pictures and the licensing of beauty operatives, on the other hand. Many of the services have little or nothing to do with the operation of public elementary and secondary schools.

Where the work does impinge upon the public schools, the greater part of it has to do with the day to day tasks of maintaining the structural features. Three such duties that consume the time of many persons are certification of teachers, computing state aid, and gathering statistics. The last contributes to the state aid computation function and provides information by which a check may be had on district compliance with laws and regulations governing teachers' employment.

The inspectorial function represents another important sector. It becomes increasingly important as state mandatory legislation increases.

A third sector has to do with the promotion of specific adaptations. Participation of the State Department in the preparation of pamphlets and bulletins on school affairs, ranging from the guidance program to instruction in reading, is a service initiated through this state agency leading toward diffusion of these practices throughout the state. Activities of the State Department in sponsoring projects as an evaluation of secondary schools by means of the

Cooperative Evaluation Criteria represents another type of leadership initiated by the department.

A few general officers have a wide scope of service. From them have come important movements to improve structural features. Examples are the improvement of school district organization, improvement of teachers, certification improvement, and the financial system.

The county superintendents serve the fourth class districts chiefly. They and their supervisory assistants are paid by the State.

Financial Status

The expenditure of districts of average wealth, according to last available data, was at about the average for the United States—more likely slightly greater than less. This is a better indication of the status of the school system than average expenditure, which, because of the influence of large cities, is somewhat above the national average.⁵⁰

In effort Pennsylvania was in 1935-36 at the median of all the states and the District of Columbia, making far more effort in terms of ability than New York, Missouri, Maryland, and Connecticut, considerably more than New Jersey, Massachusetts, and Illinois, somewhat less than Michigan and Indiana, and far less than the Dakotas, Utah, and most of the states of the deep South.⁵⁷

Expenditures in communities studied ranged from about the average of such states as Maine, Vermont, Maryland, Oklahoma, North Dakota, Kentucky, and West Virginia to among the highest in the United States.

Pennsylvania was one of the first states to develop an equalization program of the modern type—the Edmonds Act developed under Superintendent Finegan's administration in 1921. This act incorporated features of an earlier act designed to upgrade the training of teachers and also included a feature rewarding districts that employed more teachers. It recognized ability in rather broad categories. The reward for teachers employed, the broad wealth categories, and the lack of adequate tax equalization machinery

⁵⁰ In 1935, 10 per cent above. See *Report of the Advisory Committee on Education, Staff Study No. 5*, p. 12.

⁵⁷ *Ibid.*, p. 12.

made this act subject to a large amount of local manipulation which has added to the inequitable features inherent in the original scheme. But by and large it would still have to be classed as one of the better state aid plans in operation today. There have been some changes in the original law to give more help to poor districts and emerging aids for the same purpose during the depression.

Control by Mandatory Legislation and State Fiat

Flanders' study of curriculum control⁶⁸ shows that the forty-eight states almost doubled the number of curriculum mandates in the period from 1903 to 1923. In this period Pennsylvania trebled the number of its mandates. In 1903 Pennsylvania fell somewhat short of the average in number of mandates. In 1923 it had a third more than the average state, tying for second place among all states. Since 1923 there has been a general slowing down of this trend in Pennsylvania, as in other states.

The greater part of the 465 pages of the School Code has to do with the establishment of the educational system and with rules for its operation. Most of these rules are of a prudential nature, and with certain notable exceptions are so drawn as to leave school districts free to make their own decisions. Many of them appeal to the reader as over-meticulous. The Code is supplemented, however, by administrative regulation stemming from the State Council of Education. This body is made up of the State Superintendent and nine others. It resists characterization in ordinary organizational terms. It has some of the characteristics of a subordinate division of the Department of Education. But its duties are advisory to the State Superintendent and to the Legislature. It also has certain legislative powers. Its powers and duties are stated in the Code as follows:

- (a) Subject to any inconsistent provisions in this act contained, to continue to exercise the powers and perform the duties by law vested in and imposed upon the said council;
- (b) To report and recommend to the Governor, and the Public Assembly, legislation needed to make the public schools of this Commonwealth more efficient and useful;

⁶⁸ Flanders, J. K., *Legislative Control of the Elementary Curriculum*. New York: Bureau of Publications, Teachers College, Columbia University, 1925.

- (c) To equalize, through special appropriations for this purpose, or otherwise, the educational advantages of the different parts of this Commonwealth;
- (d) To inspect and require reports of the educational work in the schools and institutions wholly or partly supported by the State, which are not supervised by the public school authorities: Provided, That a copy of the report of the inspection of any such institution, which may be made to the State Council of Education, shall be sent to the head of such institution;
- (e) To encourage and promote agricultural education, manual training, domestic science, and such other vocational and practical education as the needs of this Commonwealth may, from time to time, require;
- (f) To prescribe rules and regulations for the sanitary equipment, and inspection of school buildings, and to take such other action as it may deem necessary and expedient to promote the physical and moral welfare of the children in the public schools of this Commonwealth; and to issue and have available for distribution to school directors, registered architects, and other persons applying therefor, rules and regulations in regard to school house construction;
- (g) To investigate and make recommendations pertaining to the work of any schools of design, schools of industrial arts, or industrial schools, or other educational institutions, within the Commonwealth, to which the General Assembly may make an appropriation;
- (h) To exercise all the powers, and perform all the duties formerly vested in the State Board of Education;
- (i) To change the name of any State Normal School to State Teachers' College and to designate the certificates and degrees which such college shall confer;
- (j) To determine and promulgate standards for certificates to teach in the elementary and secondary schools of this Commonwealth, which conform to the official standards promulgated by the Department of Public Instruction.

Its most far-reaching fiats are those covering minimum requirements for the education of teachers, the school building code, and the regulation of pupil transportation. Its powers to equalize school support are almost negligible because of the fact that the permanent school fund is so small as to be of minor importance. The entire fund would not make a dent in the solution to the problem if it were spent in a single year.

From the field work it appeared that the standards for high schools limited local initiative more than any others, but the recent legislation requiring certain additions in state aid to be reflected in lower taxes and the recent tenure legislation may also be found to pinch when the State has recovered from depression psychology.

Education of Teachers

The State maintains fourteen teachers colleges, each of which has a board of trustees whose actions are subject to the approval of the State Superintendent of Public Instruction. The presidents of these colleges, together with the State Superintendent, constitute a policy-forming body whose actions are binding on all institutions. The State Superintendent has the power to set examinations for entrance and graduation purposes. Administratively the State Superintendent exercises his oversight through a department of teacher education and certification, the major function of which is the certification of teachers from all institutions.

Tuition in the state teachers colleges is free to those who engage to teach in Pennsylvania for a period of two years. The trustees of an individual institution may, subject to the approval of the State Superintendent, charge fees over and beyond that normally set as the free tuition.

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